



SEQUENCE LISTING

<110> REGENERON PHARMACEUTICALS, INC.

<120> RECEPTOR BASED ANTAGONISTS, AND METHODS OF MAKING
AND USING

<130> REG 203-A

<140> USSN 09/313,942

<141> 1999-05-19

<150> 09/313,942

<151> 1999-05-19

<150> 60/101,858

<151> 1998-09-25

<160> 32

<170> FastSEQ for Windows Version 3.0

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<223> peptide derived from region near C-terminus of
gp130

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Cys Gly Thr Glu Gly Gln Val Glu Arg Phe Glu Thr Val Gly Met Glu
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 Gly Gln Gly Thr Leu Val Thr Val Ser Ser
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 Thr Thr Glu Ser Thr Gly Glu Leu Leu Asp Pro Cys Gly Tyr Ile Ser
 20 25 30
 Pro Glu Ser Pro Val Val Gln Leu His Ser Asn Phe Thr Ala Val Cys
 35 40 45
 Val Leu Lys Glu Lys Cys Met Asp Tyr Phe His Val Asn Ala Asn Tyr
 50 55 60
 Ile Val Trp Lys Thr Asn His Phe Thr Ile Pro Lys Glu Gln Tyr Thr
 65 70 75 80
 Ile Ile Asn Arg Thr Ala Ser Ser Val Thr Phe Thr Asp Ile Ala Ser
 85 90 95
 Leu Asn Ile Gln Leu Thr Cys Asn Ile Leu Thr Phe Gly Gln Leu Glu
 100 105 110
 Gln Asn Val Tyr Gly Ile Thr Ile Ile Ser Gly Leu Pro Pro Glu Lys
 115 120 125
 Pro Lys Asn Leu Ser Cys Ile Val Asn Glu Gly Lys Lys Met Arg Cys
 130 135 140
 Glu Trp Asp Gly Gly Arg Glu Thr His Leu Glu Thr Asn Phe Thr Leu
 145 150 155 160
 Lys Ser Glu Trp Ala Thr His Lys Phe Ala Asp Cys Lys Ala Lys Arg

				165				170					175			
Asp	Thr	Pro	Thr	Ser	Cys	Thr	Val	Asp	Tyr	Ser	Thr	Val	Tyr	Phe	Val	
			180					185					190			
Asn	Ile	Glu	Val	Trp	Val	Glu	Ala	Glu	Asn	Ala	Leu	Gly	Lys	Val	Thr	
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Ser	Asp	His	Ile	Asn	Phe	Asp	Pro	Val	Tyr	Lys	Val	Lys	Pro	Asn	Pro	
	210					215					220					
Pro	His	Asn	Leu	Ser	Val	Ile	Asn	Ser	Glu	Glu	Leu	Ser	Ser	Ile	Leu	
225					230					235					240	
Lys	Leu	Thr	Trp	Thr	Asn	Pro	Ser	Ile	Lys	Ser	Val	Ile	Ile	Leu	Lys	
			245						250					255		
Tyr	Asn	Ile	Gln	Tyr	Arg	Thr	Lys	Asp	Ala	Ser	Thr	Trp	Ser	Gln	Ile	
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Pro	Pro	Glu	Asp	Thr	Ala	Ser	Thr	Arg	Ser	Ser	Phe	Thr	Val	Gln	Asp	
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Leu	Lys	Pro	Phe	Thr	Glu	Tyr	Val	Phe	Arg	Ile	Arg	Cys	Met	Lys	Glu	
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Thr	Tyr	Glu	Asp	Arg	Pro	Ser	Lys	Ala	Pro	Ser	Phe	Trp	Tyr	Lys	Ile	
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Asp	Pro	Ser	His	Thr	Gln	Gly	Tyr	Arg	Thr	Val	Gln	Leu	Val	Trp	Lys	
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Thr	Leu	Pro	Pro	Phe	Glu	Ala	Asn	Gly	Lys	Ile	Leu	Asp	Tyr	Glu	Val	
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Thr	Leu	Thr	Arg	Trp	Lys	Ser	His	Leu	Gln	Asn	Tyr	Thr	Val	Asn	Ala	
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Thr	Lys	Leu	Thr	Val	Asn	Leu	Thr	Asn	Asp	Arg	Tyr	Leu	Ala	Thr	Leu	
385					390					395					400	
Thr	Val	Arg	Asn	Leu	Val	Gly	Lys	Ser	Asp	Ala	Ala	Val	Leu	Thr	Ile	
			405						410					415		
Pro	Ala	Cys	Asp	Phe	Gln	Ala	Thr	His	Pro	Val	Met	Asp	Leu	Lys	Ala	
			420					425					430			
Phe	Pro	Lys	Asp	Asn	Met	Leu	Trp	Val	Glu	Trp	Thr	Thr	Pro	Arg	Glu	
	435						440					445				
Ser	Val	Lys	Lys	Tyr	Ile	Leu	Glu	Trp	Cys	Val	Leu	Ser	Asp	Lys	Ala	
	450					455					460					
Pro	Cys	Ile	Thr	Asp	Trp	Gln	Gln	Glu	Asp	Gly	Thr	Val	His	Arg	Thr	
465					470					475					480	
Tyr	Leu	Arg	Gly	Asn	Leu	Ala	Glu	Ser	Lys	Cys	Tyr	Leu	Ile	Thr	Val	
			485						490					495		
Thr	Pro	Val	Tyr	Ala	Asp	Gly	Pro	Gly	Ser	Pro	Glu	Ser	Ile	Lys	Ala	
		500						505					510			
Tyr	Leu	Lys	Gln	Ala	Pro	Pro	Ser	Lys	Gly	Pro	Thr	Val	Arg	Thr	Lys	
	515						520					525				
Lys	Val	Gly	Lys	Asn	Glu	Ala	Val	Leu	Glu	Trp	Asp	Gln	Leu	Pro	Val	
	530					535					540					
Asp	Val	Gln	Asn	Gly	Phe	Ile	Arg	Asn	Tyr	Thr	Ile	Phe	Tyr	Arg	Thr	
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Ile	Ile	Gly	Asn	Glu	Thr	Ala	Val	Asn	Val	Asp	Ser	Ser	His	Thr	Glu	
			565						570					575		
Tyr	Thr	Leu	Ser	Ser	Leu	Thr	Ser	Asp	Thr	Leu	Tyr	Met	Val	Arg	Met	
		580						585					590			
Ala	Ala	Tyr	Thr	Asp	Glu	Gly	Gly	Lys	Asp	Gly	Pro	Glu	Phe	Thr	Phe	
	595					600						605				
Thr	Thr	Pro	Lys	Phe	Ala	Gln	Gly	Glu	Ile	Glu	Ser	Gly	Glu	Pro	Lys	
	610					615					620					
Ser	Cys	Asp	Lys	Thr	His	Thr	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	Leu	
625					630					635					640	
Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	Thr	
			645						650					655		

Ile	Val	Trp	Lys	Thr	Asn	His	Phe	Thr	Ile	Pro	Lys	Glu	Gln	Tyr	Thr
65					70					75					80
Ile	Ile	Asn	Arg	Thr	Ala	Ser	Ser	Val	Thr	Phe	Thr	Asp	Ile	Ala	Ser
				85					90					95	
Leu	Asn	Ile	Gln	Leu	Thr	Cys	Asn	Ile	Leu	Thr	Phe	Gly	Gln	Leu	Glu
			100					105					110		
Gln	Asn	Val	Tyr	Gly	Ile	Thr	Ile	Ile	Ser	Gly	Leu	Pro	Pro	Glu	Lys
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Pro	Lys	Asn	Leu	Ser	Cys	Ile	Val	Asn	Glu	Gly	Lys	Lys	Met	Arg	Cys
	130					135					140				
Glu	Trp	Asp	Gly	Gly	Arg	Glu	Thr	His	Leu	Glu	Thr	Asn	Phe	Thr	Leu
145					150					155					160
Lys	Ser	Glu	Trp	Ala	Thr	His	Lys	Phe	Ala	Asp	Cys	Lys	Ala	Lys	Arg
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Asp	Thr	Pro	Thr	Ser	Cys	Thr	Val	Asp	Tyr	Ser	Thr	Val	Tyr	Phe	Val
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Asn	Ile	Glu	Val	Trp	Val	Glu	Ala	Glu	Asn	Ala	Leu	Gly	Lys	Val	Thr
		195					200					205			
Ser	Asp	His	Ile	Asn	Phe	Asp	Pro	Val	Tyr	Lys	Val	Lys	Pro	Asn	Pro
	210					215					220				
Pro	His	Asn	Leu	Ser	Val	Ile	Asn	Ser	Glu	Glu	Leu	Ser	Ser	Ile	Leu
225					230					235					240
Lys	Leu	Thr	Trp	Thr	Asn	Pro	Ser	Ile	Lys	Ser	Val	Ile	Ile	Leu	Lys
				245					250						255
Tyr	Asn	Ile	Gln	Tyr	Arg	Thr	Lys	Asp	Ala	Ser	Thr	Trp	Ser	Gln	Ile
			260					265					270		
Pro	Pro	Glu	Asp	Thr	Ala	Ser	Thr	Arg	Ser	Ser	Phe	Thr	Val	Gln	Asp
		275					280						285		
Leu	Lys	Pro	Phe	Thr	Glu	Tyr	Val	Phe	Arg	Ile	Arg	Cys	Met	Lys	Glu
	290					295				300					
Asp	Gly	Lys	Gly	Tyr	Trp	Ser	Asp	Trp	Ser	Glu	Glu	Ala	Ser	Gly	Ile
305					310					315					320
Thr	Tyr	Glu	Asp	Arg	Pro	Ser	Lys	Ala	Pro	Ser	Phe	Trp	Tyr	Lys	Ile
				325					330						335
Asp	Pro	Ser	His	Thr	Gln	Gly	Tyr	Arg	Thr	Val	Gln	Leu	Val	Trp	Lys
			340					345					350		
Thr	Leu	Pro	Pro	Phe	Glu	Ala	Asn	Gly	Lys	Ile	Leu	Asp	Tyr	Glu	Val
		355					360					365			
Thr	Leu	Thr	Arg	Trp	Lys	Ser	His	Leu	Gln	Asn	Tyr	Thr	Val	Asn	Ala
	370					375					380				
Thr	Lys	Leu	Thr	Val	Asn	Leu	Thr	Asn	Asp	Arg	Tyr	Leu	Ala	Thr	Leu
385					390					395					400
Thr	Val	Arg	Asn	Leu	Val	Gly	Lys	Ser	Asp	Ala	Ala	Val	Leu	Thr	Ile
			405						410						415
Pro	Ala	Cys	Asp	Phe	Gln	Ala	Thr	His	Pro	Val	Met	Asp	Leu	Lys	Ala
			420					425					430		
Phe	Pro	Lys	Asp	Asn	Met	Leu	Trp	Val	Glu	Trp	Thr	Thr	Pro	Arg	Glu
		435					440					445			
Ser	Val	Lys	Lys	Tyr	Ile	Leu	Glu	Trp	Cys	Val	Leu	Ser	Asp	Lys	Ala
	450					455					460				
Pro	Cys	Ile	Thr	Asp	Trp	Gln	Gln	Glu	Asp	Gly	Thr	Val	His	Arg	Thr
465					470					475					480
Tyr	Leu	Arg	Gly	Asn	Leu	Ala	Glu	Ser	Lys	Cys	Tyr	Leu	Ile	Thr	Val
				485					490						495
Thr	Pro	Val	Tyr	Ala	Asp	Gly	Pro	Gly	Ser	Pro	Glu	Ser	Ile	Lys	Ala
			500					505					510		
Tyr	Leu	Lys	Gln	Ala	Pro	Pro	Ser	Lys	Gly	Pro	Thr	Val	Arg	Thr	Lys
		515					520					525			
Lys	Val	Gly	Lys	Asn	Glu	Ala	Val	Leu	Glu	Trp	Asp	Gln	Leu	Pro	Val
	530					535					540				
Asp	Val	Gln	Asn	Gly	Phe	Ile	Arg	Asn	Tyr	Thr	Ile	Phe	Tyr	Arg	Thr

545		550		555		560
Ile Ile Gly Asn Glu Thr Ala Val Asn Val Asp Ser Ser His Thr Glu						
	565		570		575	
Tyr Thr Leu Ser Ser Leu Thr Ser Asp Thr Leu Tyr Met Val Arg Met						
	580		585		590	
Ala Ala Tyr Thr Asp Glu Gly Gly Lys Asp Gly Pro Glu Phe Thr Phe						
	595		600		605	
Thr Thr Pro Lys Phe Ala Gln Gly Glu Ile Glu Ser Gly Ala Ser Thr						
	610		615		620	
Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser						
625	630		635		640	
Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu						
	645		650		655	
Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His						
	660		665		670	
Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser						
	675		680		685	
Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys						
	690		695		700	
Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu						
705	710		715		720	
Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro						
	725		730		735	
Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys						
	740		745		750	
Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val						
	755		760		765	
Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp						
	770		775		780	
Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr						
785	790		795		800	
Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp						
	805		810		815	
Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu						
	820		825		830	
Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg						
	835		840		845	
Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys						
	850		855		860	
Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp						
865	870		875		880	
Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys						
	885		890		895	
Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser						
	900		905		910	
Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser						
	915		920		925	
Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser						
	930		935		940	
Leu Ser Leu Ser Pro Gly Lys						
945	950					

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 <213> Homo sapiens

<400> 10
 Met Val Thr Leu Gln Thr Trp Val Val Gln Ala Leu Phe Ile Phe Leu
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 Thr Thr Glu Ser Thr Gly Glu Leu Leu Asp Pro Cys Gly Tyr Ile Ser

115

120

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 <212> PRT
 <213> Homo sapiens

<400> 12

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			20					25					30		
Asp	Tyr	Phe	Pro	Glu	Pro	Val	Thr	Val	Ser	Trp	Asn	Ser	Gly	Ala	Leu
		35					40					45			
Thr	Ser	Gly	Val	His	Thr	Phe	Pro	Ala	Val	Leu	Gln	Ser	Ser	Gly	Leu
	50					55					60				
Tyr	Ser	Leu	Ser	Ser	Val	Val	Thr	Val	Pro	Ser	Ser	Ser	Leu	Gly	Thr
65					70				75					80	
Lys	Thr	Tyr	Thr	Cys	Asn	Val	Asp	His	Lys	Pro	Ser	Asn	Thr	Lys	Val
				85					90					95	
Asp	Lys	Arg	Val	Glu	Ser	Lys	Tyr	Gly	Pro	Pro	Cys	Pro	Ser	Cys	Pro
			100					105					110		
Ala	Pro	Glu	Phe	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys
		115					120					125			
Pro	Lys	Asp	Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val
	130					135					140				
Val	Val	Asp	Val	Ser	Gln	Glu	Asp	Pro	Glu	Val	Gln	Phe	Asn	Trp	Tyr
145					150				155					160	
Val	Asp	Gly	Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu
				165					170					175	
Gln	Phe	Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His
			180					185					190		
Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys
	195						200					205			
Gly	Leu	Pro	Ser	Ser	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln
	210					215					220				
Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Gln	Glu	Glu	Met
225					230				235					240	
Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro
				245					250					255	
Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn
			260				265					270			
Tyr	Lys	Thr	Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu
	275						280					285			
Tyr	Ser	Arg	Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Glu	Gly	Asn	Val
	290					295					300				
Phe	Ser	Cys	Ser	Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln
305					310				315						320
Lys	Ser	Leu	Ser	Leu	Ser	Leu	Gly	Lys							
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<210> 13
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 <212> PRT
 <213> Homo sapiens

<400> 13

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Glu	Gln	Leu	Lys	Ser	Gly	Thr	Ala	Ser	Val	Val	Cys	Leu	Leu	Asn	Asn
		20						25					30		

Phe	Tyr	Pro	Arg	Glu	Ala	Lys	Val	Gln	Trp	Lys	Val	Asp	Asn	Ala	Leu
		35					40					45			
Gln	Ser	Gly	Asn	Ser	Gln	Glu	Ser	Val	Thr	Glu	Gln	Asp	Ser	Lys	Asp
	50					55					60				
Ser	Thr	Tyr	Ser	Leu	Ser	Ser	Thr	Leu	Thr	Leu	Ser	Lys	Ala	Asp	Tyr
65					70					75					80
Glu	Lys	His	Lys	Val	Tyr	Ala	Cys	Glu	Val	Thr	His	Gln	Gly	Leu	Ser
				85					90					95	
Ser	Pro	Val	Thr	Lys	Ser	Phe	Asn	Arg	Gly	Glu	Cys				
			100					105							

<210> 14
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 <212> PRT
 <213> Homo sapiens

Ser	Gly	Pro	Lys	Ala	Ala	Pro	Ser	Val	Thr	Leu	Phe	Pro	Pro	Ser	Ser
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Glu	Glu	Leu	Gln	Ala	Asn	Lys	Ala	Thr	Leu	Val	Cys	Leu	Ile	Ser	Asp
			20					25					30		
Phe	Tyr	Pro	Gly	Ala	Val	Thr	Val	Ala	Trp	Lys	Ala	Asp	Ser	Ser	Pro
		35					40					45			
Val	Lys	Ala	Gly	Val	Glu	Thr	Thr	Thr	Pro	Ser	Lys	Gln	Ser	Asn	Asn
	50					55					60				
Lys	Tyr	Ala	Ala	Ser	Ser	Tyr	Leu	Ser	Leu	Thr	Pro	Glu	Gln	Trp	Lys
65					70					75					80
Ser	His	Arg	Ser	Tyr	Ser	Cys	Gln	Val	Thr	His	Glu	Gly	Ser	Thr	Val
				85					90					95	
Glu	Lys	Thr	Val	Ala	Pro	Thr	Glu	Cys	Ser						
			100					105							

<210> 15
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 <212> PRT
 <213> Homo sapiens

Met	Val	Ala	Val	Gly	Cys	Ala	Leu	Leu	Ala	Ala	Leu	Leu	Ala	Ala	Pro
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Gly	Ala	Ala	Leu	Ala	Pro	Arg	Arg	Cys	Pro	Ala	Gln	Glu	Val	Ala	Arg
			20					25					30		
Gly	Val	Leu	Thr	Ser	Leu	Pro	Gly	Asp	Ser	Val	Thr	Leu	Thr	Cys	Pro
		35					40					45			
Gly	Val	Glu	Pro	Glu	Asp	Asn	Ala	Thr	Val	His	Trp	Val	Leu	Arg	Lys
	50					55					60				
Pro	Ala	Ala	Gly	Ser	His	Pro	Ser	Arg	Trp	Ala	Gly	Met	Gly	Arg	Arg
65					70					75					80
Leu	Leu	Leu	Arg	Ser	Val	Gln	Leu	His	Asp	Ser	Gly	Asn	Tyr	Ser	Cys
				85					90					95	
Tyr	Arg	Ala	Gly	Arg	Pro	Ala	Gly	Thr	Val	His	Leu	Leu	Val	Asp	Val
			100					105					110		
Pro	Pro	Glu	Glu	Pro	Gln	Leu	Ser	Cys	Phe	Arg	Lys	Ser	Pro	Leu	Ser
		115					120					125			
Asn	Val	Val	Cys	Glu	Trp	Gly	Pro	Arg	Ser	Thr	Pro	Ser	Leu	Thr	Thr
	130					135					140				
Lys	Ala	Val	Leu	Leu	Val	Arg	Lys	Phe	Gln	Asn	Ser	Pro	Ala	Glu	Asp
145					150					155					160
Phe	Gln	Glu	Pro	Cys	Gln	Tyr	Ser	Gln	Glu	Ser	Gln	Lys	Phe	Ser	Cys
				165					170					175	
Gln	Leu	Ala	Val	Pro	Glu	Gly	Asp	Ser	Ser	Phe	Tyr	Ile	Val	Ser	Met

			180					185					190			
Cys	Val	Ala	Ser	Ser	Val	Gly	Ser	Lys	Phe	Ser	Lys	Thr	Gln	Thr	Phe	
		195						200					205			
Gln	Gly	Cys	Gly	Ile	Leu	Gln	Pro	Asp	Pro	Pro	Ala	Asn	Ile	Thr	Val	
	210					215					220					
Thr	Ala	Val	Ala	Arg	Asn	Pro	Arg	Trp	Leu	Ser	Val	Thr	Trp	Gln	Asp	
225					230					235					240	
Pro	His	Ser	Trp	Asn	Ser	Ser	Phe	Tyr	Arg	Leu	Arg	Phe	Glu	Leu	Arg	
				245					250					255		
Tyr	Arg	Ala	Glu	Arg	Ser	Lys	Thr	Phe	Thr	Thr	Trp	Met	Val	Lys	Asp	
		260						265					270			
Leu	Gln	His	His	Cys	Val	Ile	His	Asp	Ala	Trp	Ser	Gly	Leu	Arg	His	
	275					280						285				
Val	Val	Gln	Leu	Arg	Ala	Gln	Glu	Glu	Phe	Gly	Gln	Gly	Glu	Trp	Ser	
	290					295					300					
Glu	Trp	Ser	Pro	Glu	Ala	Met	Gly	Thr	Pro	Trp	Thr	Glu	Ser	Arg	Ser	
305					310					315					320	
Pro	Pro	Ala	Glu	Asn	Glu	Val	Ser	Thr	Pro	Met	Gln	Ala	Leu	Thr	Thr	
				325					330					335		
Asn	Lys	Asp	Asp	Asp	Asn	Ile	Leu	Phe	Arg	Asp	Ser	Ala	Asn	Ala	Thr	
		340						345					350			
Ser	Leu	Pro	Val	Gln	Asp	Ala	Gly									
	355						360									

<210> 16
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 <213> Homo sapiens

			<400>	16												
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			20					25					30			
Gly	Val	Leu	Thr	Ser	Leu	Pro	Gly	Asp	Ser	Val	Thr	Leu	Thr	Cys	Pro	
	35						40					45				
Gly	Val	Glu	Pro	Glu	Asp	Asn	Ala	Thr	Val	His	Trp	Val	Leu	Arg	Lys	
	50					55					60					
Pro	Ala	Ala	Gly	Ser	His	Pro	Ser	Arg	Trp	Ala	Gly	Met	Gly	Arg	Arg	
65					70				75						80	
Leu	Leu	Leu	Arg	Ser	Val	Gln	Leu	His	Asp	Ser	Gly	Asn	Tyr	Ser	Cys	
				85					90					95		
Tyr	Arg	Ala	Gly	Arg	Pro	Ala	Gly	Thr	Val	His	Leu	Leu	Val	Asp	Val	
		100						105					110			
Pro	Pro	Glu	Glu	Pro	Gln	Leu	Ser	Cys	Phe	Arg	Lys	Ser	Pro	Leu	Ser	
	115						120					125				
Asn	Val	Val	Cys	Glu	Trp	Gly	Pro	Arg	Ser	Thr	Pro	Ser	Leu	Thr	Thr	
	130					135					140					
Lys	Ala	Val	Leu	Leu	Val	Arg	Lys	Phe	Gln	Asn	Ser	Pro	Ala	Glu	Asp	
145					150				155						160	
Phe	Gln	Glu	Pro	Cys	Gln	Tyr	Ser	Gln	Glu	Ser	Gln	Lys	Phe	Ser	Cys	
				165					170					175		
Gln	Leu	Ala	Val	Pro	Glu	Gly	Asp	Ser	Ser	Phe	Tyr	Ile	Val	Ser	Met	
		180						185					190			
Cys	Val	Ala	Ser	Ser	Val	Gly	Ser	Lys	Phe	Ser	Lys	Thr	Gln	Thr	Phe	
	195						200					205				
Gln	Gly	Cys	Gly	Ile	Leu	Gln	Pro	Asp	Pro	Pro	Ala	Asn	Ile	Thr	Val	
	210					215					220					
Thr	Ala	Val	Ala	Arg	Asn	Pro	Arg	Trp	Leu	Ser	Val	Thr	Trp	Gln	Asp	
225					230					235					240	
Pro	His	Ser	Trp	Asn	Ser	Ser	Phe	Tyr	Arg	Leu	Arg	Phe	Glu	Leu	Arg	

				245					250					255			
Tyr	Arg	Ala	Glu	Arg	Ser	Lys	Thr	Phe	Thr	Thr	Trp	Met	Val	Lys	Asp		
			260					265					270				
Leu	Gln	His	His	Cys	Val	Ile	His	Asp	Ala	Trp	Ser	Gly	Leu	Arg	His		
		275					280					285					
Val	Val	Gln	Leu	Arg	Ala	Gln	Glu	Glu	Phe	Gly	Gln	Gly	Glu	Trp	Ser		
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 <213> Homo sapiens

<220>
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ccc	ctg	ctg	gga	gtg	ggg	ctg	aac	acg	aca	att	ctg	acg	ccc	aat	ggg	96
Pro	Leu	Leu	Gly	Val	Gly	Leu	Asn	Thr	Thr	Ile	Leu	Thr	Pro	Asn	Gly	
			20					25					30			
aat	gaa	gac	acc	aca	gct	gat	ttc	ttc	ctg	acc	act	atg	ccc	act	gac	144
Asn	Glu	Asp	Thr	Thr	Ala	Asp	Phe	Phe	Leu	Thr	Thr	Met	Pro	Thr	Asp	
		35					40					45				
tcc	ctc	agt	gtt	tcc	act	ctg	ccc	ctc	cca	gag	gtt	cag	tgt	ttt	gtg	192
Ser	Leu	Ser	Val	Ser	Thr	Leu	Pro	Leu	Pro	Glu	Val	Gln	Cys	Phe	Val	
	50					55					60					
ttc	aat	gtc	gag	tac	atg	aat	tgc	act	tgg	aac	agc	agc	tct	gag	ccc	240
Phe	Asn	Val	Glu	Tyr	Met	Asn	Cys	Thr	Trp	Asn	Ser	Ser	Ser	Glu	Pro	
65					70					75					80	
cag	cct	acc	aac	ctc	act	ctg	cat	tat	tgg	tac	aag	aac	tcg	gat	aat	288
Gln	Pro	Thr	Asn	Leu	Thr	Leu	His	Tyr	Trp	Tyr	Lys	Asn	Ser	Asp	Asn	
				85				90						95		
gat	aaa	gtc	cag	aag	tgc	agc	cac	tat	cta	ttc	tct	gaa	gaa	atc	act	336
Asp	Lys	Val	Gln	Lys	Cys	Ser	His	Tyr	Leu	Phe	Ser	Glu	Glu	Ile	Thr	
			100					105					110			
tct	ggc	tgt	cag	ttg	caa	aaa	aag	gag	atc	cac	ctc	tac	caa	aca	ttt	384
Ser	Gly	Cys	Gln	Leu	Gln	Lys	Lys	Glu	Ile	His	Leu	Tyr	Gln	Thr	Phe	
		115					120					125				
gtt	gtt	cag	ctc	cag	gac	cca	cgg	gaa	ccc	agg	aga	cag	gcc	aca	cag	432
Val	Val	Gln	Leu	Gln	Asp	Pro	Arg	Glu	Pro	Arg	Arg	Gln	Ala	Thr	Gln	
	130					135					140					
atg	cta	aaa	ctg	cag	aat	ctg	gtg	atc	ccc	tgg	gct	cca	gag	aac	cta	480
Met	Leu	Lys	Leu	Gln	Asn	Leu	Val	Ile	Pro	Trp	Ala	Pro	Glu	Asn	Leu	
145					150					155					160	
aca	ctt	cac	aaa	ctg	agt	gaa	tcc	cag	cta	gaa	ctg	aac	tgg	aac	aac	528

Thr	Leu	His	Lys	Leu	Ser	Glu	Ser	Gln	Leu	Glu	Leu	Asn	Trp	Asn	Asn	
				165					170					175		
aga	ttc	ttg	aac	cac	tgt	ttg	gag	cac	ttg	gtg	cag	tac	cgg	act	gac	576
Arg	Phe	Leu	Asn	His	Cys	Leu	Glu	His	Leu	Val	Gln	Tyr	Arg	Thr	Asp	
			180					185					190			
tgg	gac	cac	agc	tgg	act	gaa	caa	tca	gtg	gat	tat	aga	cat	aag	ttc	624
Trp	Asp	His	Ser	Trp	Thr	Glu	Gln	Ser	Val	Asp	Tyr	Arg	His	Lys	Phe	
			195				200					205				
tcc	ttg	cct	agt	gtg	gat	ggg	cag	aaa	cgc	tac	acg	ttt	cgt	gtt	cgg	672
Ser	Leu	Pro	Ser	Val	Asp	Gly	Gln	Lys	Arg	Tyr	Thr	Phe	Arg	Val	Arg	
	210					215					220					
agc	cgc	ttt	aac	cca	ctc	tgt	gga	agt	gct	cag	cat	tgg	agt	gaa	tgg	720
Ser	Arg	Phe	Asn	Pro	Leu	Cys	Gly	Ser	Ala	Gln	His	Trp	Ser	Glu	Trp	
225					230					235				240		
agc	cac	cca	atc	cac	tgg	ggg	agc	aat	act	tca	aaa	gag	aac	gcg	tcg	768
Ser	His	Pro	Ile	His	Trp	Gly	Ser	Asn	Thr	Ser	Lys	Glu	Asn	Ala	Ser	
				245					250					255		
tct	ggg	aac	atg	aag	gtc	ctg	cag	gag	ccc	acc	tgc	gtc	tcc	gac	tac	816
Ser	Gly	Asn	Met	Lys	Val	Leu	Gln	Glu	Pro	Thr	Cys	Val	Ser	Asp	Tyr	
			260					265					270			
atg	agc	atc	tct	act	tgc	gag	tgg	aag	atg	aat	ggt	ccc	acc	aat	tgc	864
Met	Ser	Ile	Ser	Thr	Cys	Glu	Trp	Lys	Met	Asn	Gly	Pro	Thr	Asn	Cys	
		275					280					285				
agc	acc	gag	ctc	cgc	ctg	ttg	tac	cag	ctg	gtt	ttt	ctg	ctc	tcc	gaa	912
Ser	Thr	Glu	Leu	Arg	Leu	Leu	Tyr	Gln	Leu	Val	Phe	Leu	Leu	Ser	Glu	
	290					295					300					
gcc	cac	acg	tgt	atc	cct	gag	aac	aac	gga	ggc	gcg	ggg	tgc	gtg	tgc	960
Ala	His	Thr	Cys	Ile	Pro	Glu	Asn	Asn	Gly	Gly	Ala	Gly	Cys	Val	Cys	
305					310					315				320		
cac	ctg	ctc	atg	gat	gac	gtg	gtc	agt	gcg	gat	aac	tat	aca	ctg	gac	1008
His	Leu	Leu	Met	Asp	Asp	Val	Val	Ser	Ala	Asp	Asn	Tyr	Thr	Leu	Asp	
				325					330					335		
ctg	tgg	gct	ggg	cag	cag	ctg	ctg	tgg	aag	ggc	tcc	ttc	aag	ccc	agc	1056
Leu	Trp	Ala	Gly	Gln	Gln	Leu	Leu	Trp	Lys	Gly	Ser	Phe	Lys	Pro	Ser	
			340					345					350			
gag	cat	gtg	aaa	ccc	agg	gcc	cca	gga	aac	ctg	aca	gtt	cac	acc	aat	1104
Glu	His	Val	Lys	Pro	Arg	Ala	Pro	Gly	Asn	Leu	Thr	Val	His	Thr	Asn	
			355				360					365				
gtc	tcc	gac	act	ctg	ctg	ctg	acc	tgg	agc	aac	ccg	tat	ccc	cct	gac	1152
Val	Ser	Asp	Thr	Leu	Leu	Leu	Thr	Trp	Ser	Asn	Pro	Tyr	Pro	Pro	Asp	
	370					375					380					
aat	tac	ctg	tat	aat	cat	ctc	acc	tat	gca	gtc	aac	att	tgg	agt	gaa	1200
Asn	Tyr	Leu	Tyr	Asn	His	Leu	Thr	Tyr	Ala	Val	Asn	Ile	Trp	Ser	Glu	
385					390					395					400	
aac	gac	ccg	gca	gat	ttc	aga	atc	tat	aac	gtg	acc	tac	cta	gaa	ccc	1248
Asn	Asp	Pro	Ala	Asp	Phe	Arg	Ile	Tyr	Asn	Val	Thr	Tyr	Leu	Glu	Pro	

405					410					415						
tcc	ctc	cgc	atc	gca	gcc	agc	acc	ctg	aag	tct	ggg	att	tcc	tac	agg	1296
Ser	Leu	Arg	Ile	Ala	Ala	Ser	Thr	Leu	Lys	Ser	Gly	Ile	Ser	Tyr	Arg	
			420					425					430			
gca	cgg	gtg	agg	gcc	tgg	gct	cag	tgc	tat	aac	acc	acc	tgg	agt	gag	1344
Ala	Arg	Val	Arg	Ala	Trp	Ala	Gln	Cys	Tyr	Asn	Thr	Thr	Trp	Ser	Glu	
		435					440					445				
tgg	agc	ccc	agc	acc	aag	tgg	cac	aac	tcc	tac	agg	gag	ccc	ttc	gag	1392
Trp	Ser	Pro	Ser	Thr	Lys	Trp	His	Asn	Ser	Tyr	Arg	Glu	Pro	Phe	Glu	
	450					455					460					
cag	tcc	gga	gac	aaa	act	cac	aca	tgc	cca	ccg	tgc	cca	gca	cct	gaa	1440
Gln	Ser	Gly	Asp	Lys	Thr	His	Thr	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	
465					470				475						480	
ctc	ctg	ggg	gga	ccg	tca	gtc	ttc	ctc	ttc	ccc	cca	aaa	ccc	aag	gac	1488
Leu	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	
				485				490						495		
acc	ctc	atg	atc	tcc	cgg	acc	cct	gag	gtc	aca	tgc	gtg	gtg	gtg	gac	1536
Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp	
			500					505					510			
gtg	agc	cac	gaa	gac	cct	gag	gtc	aag	ttc	aac	tgg	tac	gtg	gac	ggc	1584
Val	Ser	His	Glu	Asp	Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly	
		515					520					525				
gtg	gag	gtg	cat	aat	gcc	aag	aca	aag	ccg	cgg	gag	gag	cag	tac	aac	1632
Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn	
	530					535					540					
agc	acg	tac	cgt	gtg	gtc	agc	gtc	ctc	acc	gtc	ctg	cac	cag	gac	tgg	1680
Ser	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp	
545					550					555					560	
ctg	aat	ggc	aag	gag	tac	aag	tgc	aag	gtc	tcc	aac	aaa	gcc	ctc	cca	1728
Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Ala	Leu	Pro	
				565				570						575		
gcc	ccc	atc	gag	aaa	acc	atc	tcc	aaa	gcc	aaa	ggg	cag	ccc	cga	gaa	1776
Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	
			580					585					590			
cca	cag	gtg	tac	acc	ctg	ccc	cca	tcc	cgg	gag	gag	atg	acc	aag	aac	1824
Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Glu	Glu	Met	Thr	Lys	Asn	
		595					600					605				
cag	gtc	agc	ctg	acc	tgc	ctg	gtc	aaa	ggc	ttc	tat	ccc	agc	gac	atc	1872
Gln	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	
	610					615					620					
gcc	gtg	gag	tgg	gag	agc	aat	ggg	cag	ccg	gag	aac	aac	tac	aag	acc	1920
Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	
625					630					635					640	
acg	cct	ccc	gtg	ctg	gac	tcc	gac	ggc	tcc	ttc	ttc	ctc	tat	agc	aag	1968
Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys	
				645				650						655		

ctc	acc	gtg	gac	aag	agc	agg	tgg	cag	cag	ggg	aac	gtc	ttc	tca	tgc	2016
Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	
			660					665					670			

tcc	gtg	atg	cat	gag	gct	ctg	cac	aac	cac	tac	acg	cag	aag	agc	ctc	2064
Ser	Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	
		675					680					685				

tcc	ctg	tct	ccg	ggt	aaa	tga										2085
Ser	Leu	Ser	Pro	Gly	Lys											
		690														

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			20					25					30		
Asn	Glu	Asp	Thr	Thr	Ala	Asp	Phe	Phe	Leu	Thr	Thr	Met	Pro	Thr	Asp
		35					40					45			
Ser	Leu	Ser	Val	Ser	Thr	Leu	Pro	Leu	Pro	Glu	Val	Gln	Cys	Phe	Val
	50					55					60				
Phe	Asn	Val	Glu	Tyr	Met	Asn	Cys	Thr	Trp	Asn	Ser	Ser	Ser	Glu	Pro
65				70					75						80
Gln	Pro	Thr	Asn	Leu	Thr	Leu	His	Tyr	Trp	Tyr	Lys	Asn	Ser	Asp	Asn
			85					90						95	
Asp	Lys	Val	Gln	Lys	Cys	Ser	His	Tyr	Leu	Phe	Ser	Glu	Glu	Ile	Thr
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Ser	Gly	Cys	Gln	Leu	Gln	Lys	Lys	Glu	Ile	His	Leu	Tyr	Gln	Thr	Phe
	115					120						125			
Val	Val	Gln	Leu	Gln	Asp	Pro	Arg	Glu	Pro	Arg	Arg	Gln	Ala	Thr	Gln
	130					135						140			
Met	Leu	Lys	Leu	Gln	Asn	Leu	Val	Ile	Pro	Trp	Ala	Pro	Glu	Asn	Leu
145				150					155						160
Thr	Leu	His	Lys	Leu	Ser	Glu	Ser	Gln	Leu	Glu	Leu	Asn	Trp	Asn	Asn
			165					170						175	
Arg	Phe	Leu	Asn	His	Cys	Leu	Glu	His	Leu	Val	Gln	Tyr	Arg	Thr	Asp
			180					185					190		
Trp	Asp	His	Ser	Trp	Thr	Glu	Gln	Ser	Val	Asp	Tyr	Arg	His	Lys	Phe
	195						200					205			
Ser	Leu	Pro	Ser	Val	Asp	Gly	Gln	Lys	Arg	Tyr	Thr	Phe	Arg	Val	Arg
	210					215					220				
Ser	Arg	Phe	Asn	Pro	Leu	Cys	Gly	Ser	Ala	Gln	His	Trp	Ser	Glu	Trp
225					230					235					240
Ser	His	Pro	Ile	His	Trp	Gly	Ser	Asn	Thr	Ser	Lys	Glu	Asn	Ala	Ser
			245					250						255	
Ser	Gly	Asn	Met	Lys	Val	Leu	Gln	Glu	Pro	Thr	Cys	Val	Ser	Asp	Tyr
		260						265					270		
Met	Ser	Ile	Ser	Thr	Cys	Glu	Trp	Lys	Met	Asn	Gly	Pro	Thr	Asn	Cys
	275						280					285			
Ser	Thr	Glu	Leu	Arg	Leu	Leu	Tyr	Gln	Leu	Val	Phe	Leu	Leu	Ser	Glu
	290					295					300				
Ala	His	Thr	Cys	Ile	Pro	Glu	Asn	Asn	Gly	Gly	Ala	Gly	Cys	Val	Cys
305					310				315						320
His	Leu	Leu	Met	Asp	Asp	Val	Val	Ser	Ala	Asp	Asn	Tyr	Thr	Leu	Asp

				325					330					335			
Leu	Trp	Ala	Gly	Gln	Gln	Leu	Leu	Trp	Lys	Gly	Ser	Phe	Lys	Pro	Ser		
			340					345					350				
Glu	His	Val	Lys	Pro	Arg	Ala	Pro	Gly	Asn	Leu	Thr	Val	His	Thr	Asn		
		355					360					365					
Val	Ser	Asp	Thr	Leu	Leu	Leu	Thr	Trp	Ser	Asn	Pro	Tyr	Pro	Pro	Asp		
	370					375					380						
Asn	Tyr	Leu	Tyr	Asn	His	Leu	Thr	Tyr	Ala	Val	Asn	Ile	Trp	Ser	Glu		
385					390					395					400		
Asn	Asp	Pro	Ala	Asp	Phe	Arg	Ile	Tyr	Asn	Val	Thr	Tyr	Leu	Glu	Pro		
			405					410						415			
Ser	Leu	Arg	Ile	Ala	Ala	Ser	Thr	Leu	Lys	Ser	Gly	Ile	Ser	Tyr	Arg		
			420				425						430				
Ala	Arg	Val	Arg	Ala	Trp	Ala	Gln	Cys	Tyr	Asn	Thr	Thr	Trp	Ser	Glu		
	435					440						445					
Trp	Ser	Pro	Ser	Thr	Lys	Trp	His	Asn	Ser	Tyr	Arg	Glu	Pro	Phe	Glu		
	450				455					460							
Gln	Ser	Gly	Asp	Lys	Thr	His	Thr	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu		
465					470					475					480		
Leu	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp		
			485				490						495				
Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp		
		500					505					510					
Val	Ser	His	Glu	Asp	Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly		
	515					520				525							
Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn		
	530				535					540							
Ser	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp		
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Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Ala	Leu	Pro		
			565					570					575				
Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu		
		580					585					590					
Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Glu	Glu	Met	Thr	Lys	Asn		
	595				600					605							
Gln	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile		
	610				615					620							
Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr		
625					630					635					640		
Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys		
			645					650					655				
Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys		
		660					665					670					
Ser	Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu		
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Ser	Leu	Ser	Pro	Gly	Lys												
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<210> 19
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 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (1)...(2073)

<400>	19																
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1				5				10					15				

ccc ctg ctg gga gtg ggg ctg aac acg aca att ctg acg ccc aat ggg Pro Leu Leu Gly Val Gly Leu Asn Thr Thr Ile Leu Thr Pro Asn Gly 20 25 30	96
aat gaa gac acc aca gct gat ttc ttc ctg acc act atg ccc act gac Asn Glu Asp Thr Thr Ala Asp Phe Phe Leu Thr Thr Met Pro Thr Asp 35 40 45	144
tcc ctc agt gtt tcc act ctg ccc ctc cca gag gtt cag tgt ttt gtg Ser Leu Ser Val Ser Thr Leu Pro Leu Pro Glu Val Gln Cys Phe Val 50 55 60	192
ttc aat gtc gag tac atg aat tgc act tgg aac agc agc tct gag ccc Phe Asn Val Glu Tyr Met Asn Cys Thr Trp Asn Ser Ser Ser Glu Pro 65 70 75 80	240
cag cct acc aac ctc act ctg cat tat tgg tac aag aac tcg gat aat Gln Pro Thr Asn Leu Thr Leu His Tyr Trp Tyr Lys Asn Ser Asp Asn 85 90 95	288
gat aaa gtc cag aag tgc agc cac tat cta ttc tct gaa gaa atc act Asp Lys Val Gln Lys Cys Ser His Tyr Leu Phe Ser Glu Glu Ile Thr 100 105 110	336
tct ggc tgt cag ttg caa aaa aag gag atc cac ctc tac caa aca ttt Ser Gly Cys Gln Leu Gln Lys Lys Glu Ile His Leu Tyr Gln Thr Phe 115 120 125	384
gtt gtt cag ctc cag gac cca cgg gaa ccc agg aga cag gcc aca cag Val Val Gln Leu Gln Asp Pro Arg Glu Pro Arg Arg Gln Ala Thr Gln 130 135 140	432
atg cta aaa ctg cag aat ctg gtg atc ccc tgg gct cca gag aac cta Met Leu Lys Leu Gln Asn Leu Val Ile Pro Trp Ala Pro Glu Asn Leu 145 150 155 160	480
aca ctt cac aaa ctg agt gaa tcc cag cta gaa ctg aac tgg aac aac Thr Leu His Lys Leu Ser Glu Ser Gln Leu Glu Leu Asn Trp Asn Asn 165 170 175	528
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agc cac cca atc cac tgg ggg agc aat act tca aaa gag aac ggg aac Ser His Pro Ile His Trp Gly Ser Asn Thr Ser Lys Glu Asn Gly Asn 245 250 255	768

atg aag gtc ctg cag gag ccc acc tgc gtc tcc gac tac atg agc atc	816
Met Lys Val Leu Gln Glu Pro Thr Cys Val Ser Asp Tyr Met Ser Ile	
260 265 270	
tct act tgc gag tgg aag atg aat ggt ccc acc aat tgc agc acc gag	864
Ser Thr Cys Glu Trp Lys Met Asn Gly Pro Thr Asn Cys Ser Thr Glu	
275 280 285	
ctc cgc ctg ttg tac cag ctg gtt ttt ctg ctc tcc gaa gcc cac acg	912
Leu Arg Leu Leu Tyr Gln Leu Val Phe Leu Leu Ser Glu Ala His Thr	
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Cys Ile Pro Glu Asn Asn Gly Gly Ala Gly Cys Val Cys His Leu Leu	
305 310 315 320	
atg gat gac gtg gtc agt gcg gat aac tat aca ctg gac ctg tgg gct	1008
Met Asp Asp Val Val Ser Ala Asp Asn Tyr Thr Leu Asp Leu Trp Ala	
325 330 335	
ggg cag cag ctg ctg tgg aag ggc tcc ttc aag ccc agc gag cat gtg	1056
Gly Gln Gln Leu Leu Trp Lys Gly Ser Phe Lys Pro Ser Glu His Val	
340 345 350	
aaa ccc agg gcc cca gga aac ctg aca gtt cac acc aat gtc tcc gac	1104
Lys Pro Arg Ala Pro Gly Asn Leu Thr Val His Thr Asn Val Ser Asp	
355 360 365	
act ctg ctg ctg acc tgg agc aac ccg tat ccc cct gac aat tac ctg	1152
Thr Leu Leu Leu Thr Trp Ser Asn Pro Tyr Pro Pro Asp Asn Tyr Leu	
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tat aat cat ctc acc tat gca gtc aac att tgg agt gaa aac gac ccg	1200
Tyr Asn His Leu Thr Tyr Ala Val Asn Ile Trp Ser Glu Asn Asp Pro	
385 390 395 400	
gca gat ttc aga atc tat aac gtg acc tac cta gaa ccc tcc ctc cgc	1248
Ala Asp Phe Arg Ile Tyr Asn Val Thr Tyr Leu Glu Pro Ser Leu Arg	
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atc gca gcc agc acc ctg aag tct ggg att tcc tac agg gca cgg gtg	1296
Ile Ala Ala Ser Thr Leu Lys Ser Gly Ile Ser Tyr Arg Ala Arg Val	
420 425 430	
agg gcc tgg gct cag agc tat aac acc acc tgg agt gag tgg agc ccc	1344
Arg Ala Trp Ala Gln Ser Tyr Asn Thr Thr Trp Ser Glu Trp Ser Pro	
435 440 445	
agc acc aag tgg cac aac tcc tac agg gag ccc ttc gag cag tcc gga	1392
Ser Thr Lys Trp His Asn Ser Tyr Arg Glu Pro Phe Glu Gln Ser Gly	
450 455 460	
gac aaa act cac aca tgc cca ccg tgc cca gca cct gaa ctc ctg ggg	1440
Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly	
465 470 475 480	
gga ccg tca gtc ttc ctc ttc ccc cca aaa ccc aag gac acc ctc atg	1488
Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met	
485 490 495	
atc tcc cgg acc cct gag gtc aca tgc gtg gtg gtg gac gtg agc cac	1536

Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val	Ser	His	
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Glu	Asp	Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val	Glu	Val	
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cgt	gtg	gtc	agc	gtc	ctc	acc	gtc	ctg	cac	cag	gac	tgg	ctg	aat	ggc	1680
Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu	Asn	Gly	
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Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Ala	Leu	Pro	Ala	Pro	Ile	
				565				570						575		
gag	aaa	acc	atc	tcc	aaa	gcc	aaa	ggg	cag	ccc	cga	gaa	cca	cag	gtg	1776
Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro	Gln	Val	
			580					585					590			
tac	acc	ctg	ccc	cca	tcc	cgg	gat	gag	ctg	acc	aag	aac	cag	gtc	agc	1824
Tyr	Thr		Pro	Pro	Ser	Arg	Asp	Glu	Leu	Thr	Lys	Asn	Gln	Val	Ser	
		595					600					605				
ctg	acc	tgc	ctg	gtc	aaa	ggc	ttc	tat	ccc	agc	gac	atc	gcc	gtg	gag	1872
Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala	Val	Glu	
	610					615					620					
tgg	gag	agc	aat	ggg	cag	ccg	gag	aac	aac	tac	aag	acc	acg	cct	ccc	1920
Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro	Pro	
625					630					635					640	
gtg	ctg	gac	tcc	gac	ggc	tcc	ttc	ttc	ctc	tat	agc	aag	ctc	acc	gtg	1968
Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys	Leu	Thr	Val	
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gac	aag	agc	agg	tgg	cag	cag	ggg	aac	gtc	ttc	tca	tgc	tcc	gtg	atg	2016
Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser	Val	Met	
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cat	gag	gct	ctg	cac	aac	cac	tac	acg	cag	aag	agc	ctc	tcc	ctg	tct	2064
His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser	Leu	Ser	
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Pro	Gly	Lys														
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 Pro Leu Leu Gly Val Gly Leu Asn Thr Thr Ile Leu Thr Pro Asn Gly

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Ser	Leu	Ser	Val	Ser	Thr	Leu	Pro	Leu	Pro	Glu	Val	Gln	Cys	Phe	Val	
	50					55					60					
Phe	Asn	Val	Glu	Tyr	Met	Asn	Cys	Thr	Trp	Asn	Ser	Ser	Ser	Glu	Pro	
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Gln	Pro	Thr	Asn	Leu	Thr	Leu	His	Tyr	Trp	Tyr	Lys	Asn	Ser	Asp	Asn	
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Asp	Lys	Val	Gln	Lys	Cys	Ser	His	Tyr	Leu	Phe	Ser	Glu	Glu	Ile	Thr	
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Ser	Gly	Cys	Gln	Leu	Gln	Lys	Lys	Glu	Ile	His	Leu	Tyr	Gln	Thr	Phe	
	115						120					125				
Val	Val	Gln	Leu	Gln	Asp	Pro	Arg	Glu	Pro	Arg	Arg	Gln	Ala	Thr	Gln	
	130					135						140				
Met	Leu	Lys	Leu	Gln	Asn	Leu	Val	Ile	Pro	Trp	Ala	Pro	Glu	Asn	Leu	
145					150					155					160	
Thr	Leu	His	Lys	Leu	Ser	Glu	Ser	Gln	Leu	Glu	Leu	Asn	Trp	Asn	Asn	
			165						170					175		
Arg	Phe	Leu	Asn	His	Cys	Leu	Glu	His	Leu	Val	Gln	Tyr	Arg	Thr	Asp	
			180					185					190			
Trp	Asp	His	Ser	Trp	Thr	Glu	Gln	Ser	Val	Asp	Tyr	Arg	His	Lys	Phe	
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Ser	Arg	Phe	Asn	Pro	Leu	Cys	Gly	Ser	Ala	Gln	His	Trp	Ser	Glu	Trp	
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Ser	His	Pro	Ile	His	Trp	Gly	Ser	Asn	Thr	Ser	Lys	Glu	Asn	Gly	Asn	
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Met	Lys	Val	Leu	Gln	Glu	Pro	Thr	Cys	Val	Ser	Asp	Tyr	Met	Ser	Ile	
			260					265					270			
Ser	Thr	Cys	Glu	Trp	Lys	Met	Asn	Gly	Pro	Thr	Asn	Cys	Ser	Thr	Glu	
	275						280					285				
Leu	Arg	Leu	Leu	Tyr	Gln	Leu	Val	Phe	Leu	Leu	Ser	Glu	Ala	His	Thr	
	290					295					300					
Cys	Ile	Pro	Glu	Asn	Asn	Gly	Gly	Ala	Gly	Cys	Val	Cys	His	Leu	Leu	
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Met	Asp	Asp	Val	Val	Ser	Ala	Asp	Asn	Tyr	Thr	Leu	Asp	Leu	Trp	Ala	
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Gly	Gln	Gln	Leu	Leu	Trp	Lys	Gly	Ser	Phe	Lys	Pro	Ser	Glu	His	Val	
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Lys	Pro	Arg	Ala	Pro	Gly	Asn	Leu	Thr	Val	His	Thr	Asn	Val	Ser	Asp	
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Thr	Leu	Leu	Leu	Thr	Trp	Ser	Asn	Pro	Tyr	Pro	Pro	Asp	Asn	Tyr	Leu	
	370					375					380					
Tyr	Asn	His	Leu	Thr	Tyr	Ala	Val	Asn	Ile	Trp	Ser	Glu	Asn	Asp	Pro	
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Ala	Asp	Phe	Arg	Ile	Tyr	Asn	Val	Thr	Tyr	Leu	Glu	Pro	Ser	Leu	Arg	
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Ser	Thr	Lys	Trp	His	Asn	Ser	Tyr	Arg	Glu	Pro	Phe	Glu	Gln	Ser	Gly	
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Asp	Lys	Thr	His	Thr	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	Leu	Leu	Gly	
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Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val	Ser	His	
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Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Ala	Leu	Pro	Ala	Pro	Ile
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Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro	Gln	Val
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Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Asp	Glu	Leu	Thr	Lys	Asn	Gln	Val	Ser
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Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala	Val	Glu
	610					615					620				
Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro	Pro
625					630					635					640
Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys	Leu	Thr	Val
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Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser	Val	Met
			660					665					670		
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Pro	Leu	Leu	Gly	Val	Gly	Leu	Asn	Thr	Thr	Ile	Leu	Thr	Pro	Asn	Gly	
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Asn	Glu	Asp	Thr	Thr	Ala	Asp	Phe	Phe	Leu	Thr	Thr	Met	Pro	Thr	Asp	
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cag cct acc aac ctc act ctg cat tat tgg tac aag aac tcg gat aat																288
Gln	Pro	Thr	Asn	Leu	Thr	Leu	His	Tyr	Trp	Tyr	Lys	Asn	Ser	Asp	Asn	
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atg cta aaa ctg cag aat ctg gtg atc ccc tgg gct cca gag aac cta Met Leu Lys Leu Gln Asn Leu Val Ile Pro Trp Ala Pro Glu Asn Leu 145 150 155 160			480
aca ctt cac aaa ctg agt gaa tcc cag cta gaa ctg aac tgg aac aac Thr Leu His Lys Leu Ser Glu Ser Gln Leu Glu Leu Asn Trp Asn Asn 165 170 175			528
aga ttc ttg aac cac tgt ttg gag cac ttg gtg cag tac cgg act gac Arg Phe Leu Asn His Cys Leu Glu His Leu Val Gln Tyr Arg Thr Asp 180 185 190			576
tgg gac cac agc tgg act gaa caa tca gtg gat tat aga cat aag ttc Trp Asp His Ser Trp Thr Glu Gln Ser Val Asp Tyr Arg His Lys Phe 195 200 205			624
tcc ttg cct agt gtg gat ggg cag aaa cgc tac acg ttt cgt gtt cgg Ser Leu Pro Ser Val Asp Gly Gln Lys Arg Tyr Thr Phe Arg Val Arg 210 215 220			672
agc cgc ttt aac cca ctc tgt gga agt gct cag cat tgg agt gaa tgg Ser Arg Phe Asn Pro Leu Cys Gly Ser Ala Gln His Trp Ser Glu Trp 225 230 235 240			720
agc cac cca atc cac tgg ggg agc aat act tca aaa gag aac gcg tcg Ser His Pro Ile His Trp Gly Ser Asn Thr Ser Lys Glu Asn Ala Ser 245 250 255			768
tct ggg aac atg aag gtc ctg cag gag ccc acc tgc gtc tcc gac tac Ser Gly Asn Met Lys Val Leu Gln Glu Pro Thr Cys Val Ser Asp Tyr 260 265 270			816
atg agc atc tct act tgc gag tgg aag atg aat ggt ccc acc aat tgc Met Ser Ile Ser Thr Cys Glu Trp Lys Met Asn Gly Pro Thr Asn Cys 275 280 285			864
agc acc gag ctc cgc ctg ttg tac cag ctg gtt ttt ctg ctc tcc gaa Ser Thr Glu Leu Arg Leu Leu Tyr Gln Leu Val Phe Leu Leu Ser Glu 290 295 300			912
gcc cac acg tgt atc cct gag aac aac gga ggc gcg ggg tgc gtg tgc Ala His Thr Cys Ile Pro Glu Asn Asn Gly Gly Ala Gly Cys Val Cys 305 310 315 320			960
cac ctg ctc atg gat gac gtg gtc agt gcg gat aac tat aca ctg gac His Leu Leu Met Asp Asp Val Val Ser Ala Asp Asn Tyr Thr Leu Asp 325 330 335			1008
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aat tac ctg tat aat cat ctc acc tat gca gtc aac att tgg agt gaa Asn Tyr Leu Tyr Asn His Leu Thr Tyr Ala Val Asn Ile Trp Ser Glu 385 390 395 400	1200
aac gac ccg gca gat ttc aga atc tat aac gtg acc tac cta gaa ccc Asn Asp Pro Ala Asp Phe Arg Ile Tyr Asn Val Thr Tyr Leu Glu Pro 405 410 415	1248
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gca cgg gtg agg gcc tgg gct cag agc tat aac acc acc tgg agt gag Ala Arg Val Arg Ala Trp Ala Gln Ser Tyr Asn Thr Thr Trp Ser Glu 435 440 445	1344
tgg agc ccc agc acc aag tgg cac aac tcc tac agg gag ccc ttc gag Trp Ser Pro Ser Thr Lys Trp His Asn Ser Tyr Arg Glu Pro Phe Glu 450 455 460	1392
cag tcc gga gac aaa act cac aca tgc cca ccg tgc cca gca cct gaa Gln Ser Gly Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu 465 470 475 480	1440
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acc ctc atg atc tcc cgg acc cct gag gtc aca tgc gtg gtg gtg gac Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp 500 505 510	1536
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gtg gag gtg cat aat gcc aag aca aag ccg cgg gag gag cag tac aac Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn 530 535 540	1632
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Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Asp	Glu	Leu	Thr	Lys	Asn	
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Gln	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	
	610					615					620					
gcc	gtg	gag	tgg	gag	agc	aat	ggg	cag	ccg	gag	aac	aac	tac	aag	acc	1920
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Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys	
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ctc	acc	gtg	gac	aag	agc	agg	tgg	cag	cag	ggg	aac	gtc	ttc	tca	tgc	2016
Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	
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Ser	Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	
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 <212> PRT
 <213> Homo sapiens

<400> 22

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Phe	Asn	Val	Glu	Tyr	Met	Asn	Cys	Thr	Trp	Asn	Ser	Ser	Ser	Glu	Pro	
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Gln	Pro	Thr	Asn	Leu	Thr	Leu	His	Tyr	Trp	Tyr	Lys	Asn	Ser	Asp	Asn	
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Met	Leu	Lys	Leu	Gln	Asn	Leu	Val	Ile	Pro	Trp	Ala	Pro	Glu	Asn	Leu	
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Thr	Leu	His	Lys	Leu	Ser	Glu	Ser	Gln	Leu	Glu	Leu	Asn	Trp	Asn	Asn	
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Arg	Phe	Leu	Asn	His	Cys	Leu	Glu	His	Leu	Val	Gln	Tyr	Arg	Thr	Asp	
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Trp	Asp	His	Ser	Trp	Thr	Glu	Gln	Ser	Val	Asp	Tyr	Arg	His	Lys	Phe	
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Ser	His	Pro	Ile	His	Trp	Gly	Ser	Asn	Thr	Ser	Lys	Glu	Asn	Ala	Ser
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His	Leu	Leu	Met	Asp	Asp	Val	Val	Ser	Ala	Asp	Asn	Tyr	Thr	Leu	Asp
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Asn	Asp	Pro	Ala	Asp	Phe	Arg	Ile	Tyr	Asn	Val	Thr	Tyr	Leu	Glu	Pro
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Leu	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp
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Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp
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Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Ala	Leu	Pro
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625					630					635					640
Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys
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Ser	Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu
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Gly	Ala	Ala	Leu	Ala	Pro	Arg	Arg	Cys	Pro	Ala	Gln	Glu	Val	Ala	Arg	
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Pro	Ala	Ala	Gly	Ser	His	Pro	Ser	Arg	Trp	Ala	Gly	Met	Gly	Arg	Arg	
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Tyr	Arg	Ala	Gly	Arg	Pro	Ala	Gly	Thr	Val	His	Leu	Leu	Val	Asp	Val	
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Asn	Val	Val	Cys	Glu	Trp	Gly	Pro	Arg	Ser	Thr	Pro	Ser	Leu	Thr	Thr	
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Lys	Ala	Val	Leu	Leu	Val	Arg	Lys	Phe	Gln	Asn	Ser	Pro	Ala	Glu	Asp	
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Phe	Gln	Glu	Pro	Cys	Gln	Tyr	Ser	Gln	Glu	Ser	Gln	Lys	Phe	Ser	Cys	
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Gln	Leu	Ala	Val	Pro	Glu	Gly	Asp	Ser	Ser	Phe	Tyr	Ile	Val	Ser	Met	
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Pro	His	Ser	Trp	Asn	Ser	Ser	Phe	Tyr	Arg	Leu	Arg	Phe	Glu	Leu	Arg	
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Tyr	Arg	Ala	Glu	Arg	Ser	Lys	Thr	Phe	Thr	Thr	Trp	Met	Val	Lys	Asp	
			260					265					270			
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Glu	Ser	Pro	Val	Val	Gln	Leu	His	Ser	Asn	Phe	Thr	Ala	Val	Cys	Val	
		355					360					365				
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Leu	Lys	Glu	Lys	Cys	Met	Asp	Tyr	Phe	His	Val	Asn	Ala	Asn	Tyr	Ile	
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Asn	Ile	Gln	Leu	Thr	Cys	Asn	Ile	Leu	Thr	Phe	Gly	Gln	Leu	Glu	Gln	
			420					425					430			
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Ser	Glu	Trp	Ala	Thr	His	Lys	Phe	Ala	Asp	Cys	Lys	Ala	Lys	Arg	Asp		
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Ala	Cys	Asp	Phe	Gln	Ala	Thr	His	Pro	Val	Met	Asp	Leu	Lys	Ala	Phe	
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Val	Lys	Lys	Tyr	Ile	Leu	Glu	Trp	Cys	Val	Leu	Ser	Asp	Lys	Ala	Pro	
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Cys	Ile	Thr	Asp	Trp	Gln	Gln	Glu	Asp	Gly	Thr	Val	His	Arg	Thr	Tyr	
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Leu	Arg	Gly	Asn	Leu	Ala	Glu	Ser	Lys	Cys	Tyr	Leu	Ile	Thr	Val	Thr	
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Pro	Val	Tyr	Ala	Asp	Gly	Pro	Gly	Ser	Pro	Glu	Ser	Ile	Lys	Ala	Tyr	
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Leu	Lys	Gln	Ala	Pro	Pro	Ser	Lys	Gly	Pro	Thr	Val	Arg	Thr	Lys	Lys	
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Val	Gly	Lys	Asn	Glu	Ala	Val	Leu	Glu	Trp	Asp	Gln	Leu	Pro	Val	Asp	
	850					855					860					
gtt	cag	aat	gga	ttt	atc	aga	aat	tat	act	ata	ttt	tat	aga	acc	atc	2640
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Ile	Gly	Asn	Glu	Thr	Ala	Val	Asn	Val	Asp	Ser	Ser	His	Thr	Glu	Tyr	
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Thr	Leu	Ser	Ser	Leu	Thr	Ser	Asp	Thr	Leu	Tyr	Met	Val	Arg	Met	Ala	
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Ala	Tyr	Thr	Asp	Glu	Gly	Gly	Lys	Asp	Gly	Pro	Glu	Phe	Thr	Phe	Thr	
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Thr Pro Lys Phe Ala Gln Gly Glu Ile Glu Ser Gly Gly Asp Lys Thr	
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His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser	
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Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg	
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Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro	
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Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala	
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Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val	
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Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr	
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Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr	
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Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu	
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Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys	
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Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp	
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Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser	
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tga	3507

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 Gly Val Glu Pro Glu Asp Asn Ala Thr Val His Trp Val Leu Arg Lys
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 Pro Ala Ala Gly Ser His Pro Ser Arg Trp Ala Gly Met Gly Arg Arg
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 Leu Leu Leu Arg Ser Val Gln Leu His Asp Ser Gly Asn Tyr Ser Cys
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 Tyr Arg Ala Gly Arg Pro Ala Gly Thr Val His Leu Leu Val Asp Val
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 Pro Pro Glu Glu Pro Gln Leu Ser Cys Phe Arg Lys Ser Pro Leu Ser
 115 120 125
 Asn Val Val Cys Glu Trp Gly Pro Arg Ser Thr Pro Ser Leu Thr Thr
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 Lys Ala Val Leu Leu Val Arg Lys Phe Gln Asn Ser Pro Ala Glu Asp
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 Phe Gln Glu Pro Cys Gln Tyr Ser Gln Glu Ser Gln Lys Phe Ser Cys
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 Gln Leu Ala Val Pro Glu Gly Asp Ser Ser Phe Tyr Ile Val Ser Met
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 Cys Val Ala Ser Ser Val Gly Ser Lys Phe Ser Lys Thr Gln Thr Phe
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 Gln Gly Cys Gly Ile Leu Gln Pro Asp Pro Pro Ala Asn Ile Thr Val
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 Thr Ala Val Ala Arg Asn Pro Arg Trp Leu Ser Val Thr Trp Gln Asp
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 Pro His Ser Trp Asn Ser Ser Phe Tyr Arg Leu Arg Phe Glu Leu Arg
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 Tyr Arg Ala Glu Arg Ser Lys Thr Phe Thr Thr Trp Met Val Lys Asp
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 Leu Gln His His Cys Val Ile His Asp Ala Trp Ser Gly Leu Arg His
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 Val Val Gln Leu Arg Ala Gln Glu Glu Phe Gly Gln Gly Glu Trp Ser
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 Glu Trp Ser Pro Glu Ala Met Gly Thr Pro Trp Thr Glu Ser Arg Ser
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 Pro Pro Ala Glu Asn Glu Val Ser Thr Pro Met Thr Gly Gly Ala Pro
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 Ser Gly Ala Gln Leu Glu Leu Leu Asp Pro Cys Gly Tyr Ile Ser Pro
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 Glu Ser Pro Val Val Gln Leu His Ser Asn Phe Thr Ala Val Cys Val
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 Leu Lys Glu Lys Cys Met Asp Tyr Phe His Val Asn Ala Asn Tyr Ile
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 Val Trp Lys Thr Asn His Phe Thr Ile Pro Lys Glu Gln Tyr Thr Ile
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 Ile Asn Arg Thr Ala Ser Ser Val Thr Phe Thr Asp Ile Ala Ser Leu
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 Asn Ile Gln Leu Thr Cys Asn Ile Leu Thr Phe Gly Gln Leu Glu Gln
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Asn	Val	Tyr	Gly	Ile	Thr	Ile	Ile	Ser	Gly	Leu	Pro	Pro	Glu	Lys	Pro
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Lys	Asn	Leu	Ser	Cys	Ile	Val	Asn	Glu	Gly	Lys	Lys	Met	Arg	Cys	Glu
	450					455					460				
Trp	Asp	Gly	Gly	Arg	Glu	Thr	His	Leu	Glu	Thr	Asn	Phe	Thr	Leu	Lys
465					470					475					480
Ser	Glu	Trp	Ala	Thr	His	Lys	Phe	Ala	Asp	Cys	Lys	Ala	Lys	Arg	Asp
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Thr	Pro	Thr	Ser	Cys	Thr	Val	Asp	Tyr	Ser	Thr	Val	Tyr	Phe	Val	Asn
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Ile	Glu	Val	Trp	Val	Glu	Ala	Glu	Asn	Ala	Leu	Gly	Lys	Val	Thr	Ser
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Asp	His	Ile	Asn	Phe	Asp	Pro	Val	Tyr	Lys	Val	Lys	Pro	Asn	Pro	Pro
	530					535					540				
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Leu	Thr	Trp	Thr	Asn	Pro	Ser	Ile	Lys	Ser	Val	Ile	Ile	Leu	Lys	Tyr
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			580					585					590		
Pro	Glu	Asp	Thr	Ala	Ser	Thr	Arg	Ser	Ser	Phe	Thr	Val	Gln	Asp	Leu
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Lys	Pro	Phe	Thr	Glu	Tyr	Val	Phe	Arg	Ile	Arg	Cys	Met	Lys	Glu	Asp
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	675						680					685			
Leu	Thr	Arg	Trp	Lys	Ser	His	Leu	Gln	Asn	Tyr	Thr	Val	Asn	Ala	Thr
	690					695					700				
Lys	Leu	Thr	Val	Asn	Leu	Thr	Asn	Asp	Arg	Tyr	Leu	Ala	Thr	Leu	Thr
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Val	Arg	Asn	Leu	Val	Gly	Lys	Ser	Asp	Ala	Ala	Val	Leu	Thr	Ile	Pro
				725					730					735	
Ala	Cys	Asp	Phe	Gln	Ala	Thr	His	Pro	Val	Met	Asp	Leu	Lys	Ala	Phe
			740					745					750		
Pro	Lys	Asp	Asn	Met	Leu	Trp	Val	Glu	Trp	Thr	Thr	Pro	Arg	Glu	Ser
	755						760					765			
Val	Lys	Lys	Tyr	Ile	Leu	Glu	Trp	Cys	Val	Leu	Ser	Asp	Lys	Ala	Pro
	770					775					780				
Cys	Ile	Thr	Asp	Trp	Gln	Gln	Glu	Asp	Gly	Thr	Val	His	Arg	Thr	Tyr
785					790					795					800
Leu	Arg	Gly	Asn	Leu	Ala	Glu	Ser	Lys	Cys	Tyr	Leu	Ile	Thr	Val	Thr
			805						810					815	
Pro	Val	Tyr	Ala	Asp	Gly	Pro	Gly	Ser	Pro	Glu	Ser	Ile	Lys	Ala	Tyr
			820					825					830		
Leu	Lys	Gln	Ala	Pro	Pro	Ser	Lys	Gly	Pro	Thr	Val	Arg	Thr	Lys	Lys
	835						840					845			
Val	Gly	Lys	Asn	Glu	Ala	Val	Leu	Glu	Trp	Asp	Gln	Leu	Pro	Val	Asp
	850					855					860				
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865					870					875					880
Ile	Gly	Asn	Glu	Thr	Ala	Val	Asn	Val	Asp	Ser	Ser	His	Thr	Glu	Tyr
				885					890					895	
Thr	Leu	Ser	Ser	Leu	Thr	Ser	Asp	Thr	Leu	Tyr	Met	Val	Arg	Met	Ala
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Ala	Tyr	Thr	Asp	Glu	Gly	Gly	Lys	Asp	Gly	Pro	Glu	Phe	Thr	Phe	Thr

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Leu Leu Leu Arg Ser Val Gln Leu His Asp Ser Gly Asn Tyr Ser Cys	
85 90 95	
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Tyr Arg Ala Gly Arg Pro Ala Gly Thr Val His Leu Leu Val Asp Val	
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Pro Pro Glu Glu Pro Gln Leu Ser Cys Phe Arg Lys Ser Pro Leu Ser	
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Asn Val Val Cys Glu Trp Gly Pro Arg Ser Thr Pro Ser Leu Thr Thr	
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Lys Ala Val Leu Leu Val Arg Lys Phe Gln Asn Ser Pro Ala Glu Asp	
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Phe Gln Glu Pro Cys Gln Tyr Ser Gln Glu Ser Gln Lys Phe Ser Cys	
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Gln Leu Ala Val Pro Glu Gly Asp Ser Ser Phe Tyr Ile Val Ser Met	
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Cys Val Ala Ser Ser Val Gly Ser Lys Phe Ser Lys Thr Gln Thr Phe	
195 200 205	
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Gln Gly Cys Gly Ile Leu Gln Pro Asp Pro Pro Ala Asn Ile Thr Val	
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Thr Ala Val Ala Arg Asn Pro Arg Trp Leu Ser Val Thr Trp Gln Asp	
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Pro His Ser Trp Asn Ser Ser Phe Tyr Arg Leu Arg Phe Glu Leu Arg	
245 250 255	
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Tyr Arg Ala Glu Arg Ser Lys Thr Phe Thr Thr Trp Met Val Lys Asp	
260 265 270	
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Leu Gln His His Cys Val Ile His Asp Ala Trp Ser Gly Leu Arg His	
275 280 285	
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Val Val Gln Leu Arg Ala Gln Glu Glu Phe Gly Gln Gly Glu Trp Ser	
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Glu Trp Ser Pro Glu Ala Met Gly Thr Pro Trp Thr Glu Ser Arg Ser	
305 310 315 320	

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Pro Pro Ala Glu Asn Glu Val Ser Thr Pro Met Glu Leu Leu Asp Pro	
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Cys Gly Tyr Ile Ser Pro Glu Ser Pro Val Val Gln Leu His Ser Asn	
340 345 350	
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Phe Thr Ala Val Cys Val Leu Lys Glu Lys Cys Met Asp Tyr Phe His	
355 360 365	
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Val Asn Ala Asn Tyr Ile Val Trp Lys Thr Asn His Phe Thr Ile Pro	
370 375 380	
aag gag caa tat act atc ata aac aga aca gca tcc agt gtc acc ttt	1200
Lys Glu Gln Tyr Thr Ile Ile Asn Arg Thr Ala Ser Ser Val Thr Phe	
385 390 395 400	
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Thr Asp Ile Ala Ser Leu Asn Ile Gln Leu Thr Cys Asn Ile Leu Thr	
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Lys Lys Met Arg Cys Glu Trp Asp Gly Gly Arg Glu Thr His Leu Glu	
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Thr Asn Phe Thr Leu Lys Ser Glu Trp Ala Thr His Lys Phe Ala Asp	
465 470 475 480	
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Cys Lys Ala Lys Arg Asp Thr Pro Thr Ser Cys Thr Val Asp Tyr Ser	
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Thr Val Tyr Phe Val Asn Ile Glu Val Trp Val Glu Ala Glu Asn Ala	
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Val Lys Pro Asn Pro Pro His Asn Leu Ser Val Ile Asn Ser Glu Glu	
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545 550 555 560	
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Thr	Trp	Ser	Gln	Ile	Pro	Pro	Glu	Asp	Thr	Ala	Ser	Thr	Arg	Ser	Ser	
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Phe	Thr	Val	Gln	Asp	Leu	Lys	Pro	Phe	Thr	Glu	Tyr	Val	Phe	Arg	Ile	
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Tyr	Thr	Val	Asn	Ala	Thr	Lys	Leu	Thr	Val	Asn	Leu	Thr	Asn	Asp	Arg	
		690				695					700					
tat	cta	gca	acc	cta	aca	gta	aga	aat	ctt	gtt	ggc	aaa	tca	gat	gca	2160
Tyr	Leu	Ala	Thr	Leu	Thr	Val	Arg	Asn	Leu	Val	Gly	Lys	Ser	Asp	Ala	
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gct	gtt	tta	act	atc	cct	gcc	tgt	gac	ttt	caa	gct	act	cac	cct	gta	2208
Ala	Val	Leu	Thr	Ile	Pro	Ala	Cys	Asp	Phe	Gln	Ala	Thr	His	Pro	Val	
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Thr	Thr	Pro	Arg	Glu	Ser	Val	Lys	Lys	Tyr	Ile	Leu	Glu	Trp	Cys	Val	
		755					760					765				
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785					790					795					800	
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Tyr	Leu	Ile	Thr	Val	Thr	Pro	Val	Tyr	Ala	Asp	Gly	Pro	Gly	Ser	Pro	

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							885								895			
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Pro	Glu	Phe	Thr	Phe	Thr	Thr	Pro	Lys	Phe	Ala	Gln	Gly	Glu	Ile	Glu			
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Ser	Gly	Gly	Asp	Lys	Thr	His	Thr	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu			
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ctc	ctg	ggg	gga	ccg	tca	gtc	ttc	ctc	ttc	ccc	cca	aaa	ccc	aag	gac	2880		
Leu	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp			
							945								955			
acc	ctc	atg	atc	tcc	cgg	acc	cct	gag	gtc	aca	tgc	gtg	gtg	gtg	gac	2928		
Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp			
							965								975			
gtg	agc	cac	gaa	gac	cct	gag	gtc	aag	ttc	aac	tgg	tac	gtg	gac	ggc	2976		
Val	Ser	His	Glu	Asp	Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly			
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gtg	gag	gtg	cat	aat	gcc	aag	aca	aag	ccg	cgg	gag	gag	cag	tac	aac	3024		
Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn			
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agc	acg	tac	cgt	gtg	gtc	agc	gtc	ctc	acc	gtc	ctg	cac	cag	gac	tgg	3072		
Ser	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp			
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ctg	aat	ggc	aag	gag	tac	aag	tgc	aag	gtc	tcc	aac	aaa	gcc	ctc	cca	3120		
Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	Ala	Leu	Pro			
							1025								1030			
gcc	ccc	atc	gag	aaa	acc	atc	tcc	aaa	gcc	aaa	ggg	cag	ccc	cga	gaa	3168		
Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu			
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cca cag gtg tac acc ctg ccc cca tcc cgg gat gag ctg acc aag aac	3216
Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn	
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cag gtc agc ctg acc tgc ctg gtc aaa ggc ttc tat ccc agc gac atc	3264
Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile	
1075 1080 1085	
gcc gtg gag tgg gag agc aat ggg cag ccg gag aac aac tac aag acc	3312
Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr	
1090 1095 1100	
acg cct ccc gtg ctg gac tcc gac ggc tcc ttc ttc ctc tac agc aag	3360
Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys	
1105 1110 1115 1120	
ctc acc gtg gac aag agc agg tgg cag cag ggg aac gtc ttc tca tgc	3408
Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys	
1125 1130 1135	
tcc gtg atg cat gag gct ctg cac aac cac tac acg cag aag agc ctc	3456
Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu	
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Ser Leu Ser Pro Gly Lys	
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<400> 26

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Gly Val Glu Pro Glu Asp Asn Ala Thr Val His Trp Val Leu Arg Lys	
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Pro Ala Ala Gly Ser His Pro Ser Arg Trp Ala Gly Met Gly Arg Arg	
65 70 75 80	
Leu Leu Leu Arg Ser Val Gln Leu His Asp Ser Gly Asn Tyr Ser Cys	
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Tyr Arg Ala Gly Arg Pro Ala Gly Thr Val His Leu Leu Val Asp Val	
100 105 110	
Pro Pro Glu Glu Pro Gln Leu Ser Cys Phe Arg Lys Ser Pro Leu Ser	
115 120 125	
Asn Val Val Cys Glu Trp Gly Pro Arg Ser Thr Pro Ser Leu Thr Thr	
130 135 140	
Lys Ala Val Leu Leu Val Arg Lys Phe Gln Asn Ser Pro Ala Glu Asp	
145 150 155 160	
Phe Gln Glu Pro Cys Gln Tyr Ser Gln Glu Ser Gln Lys Phe Ser Cys	
165 170 175	
Gln Leu Ala Val Pro Glu Gly Asp Ser Ser Phe Tyr Ile Val Ser Met	
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Cys Val Ala Ser Ser Val Gly Ser Lys Phe Ser Lys Thr Gln Thr Phe	

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Pro	His	Ser	Trp	Asn	Ser	Ser	Phe	Tyr	Arg	Leu	Arg	Phe	Glu	Leu	Arg	
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Tyr	Arg	Ala	Glu	Arg	Ser	Lys	Thr	Phe	Thr	Thr	Trp	Met	Val	Lys	Asp	
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Leu	Gln	His	His	Cys	Val	Ile	His	Asp	Ala	Trp	Ser	Gly	Leu	Arg	His	
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Val	Val	Gln	Leu	Arg	Ala	Gln	Glu	Glu	Phe	Gly	Gln	Gly	Glu	Trp	Ser	
	290					295					300					
Glu	Trp	Ser	Pro	Glu	Ala	Met	Gly	Thr	Pro	Trp	Thr	Glu	Ser	Arg	Ser	
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Pro	Pro	Ala	Glu	Asn	Glu	Val	Ser	Thr	Pro	Met	Glu	Leu	Leu	Asp	Pro	
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Cys	Gly	Tyr	Ile	Ser	Pro	Glu	Ser	Pro	Val	Val	Gln	Leu	His	Ser	Asn	
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Phe	Thr	Ala	Val	Cys	Val	Leu	Lys	Glu	Lys	Cys	Met	Asp	Tyr	Phe	His	
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Val	Asn	Ala	Asn	Tyr	Ile	Val	Trp	Lys	Thr	Asn	His	Phe	Thr	Ile	Pro	
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Thr	Asp	Ile	Ala	Ser	Leu	Asn	Ile	Gln	Leu	Thr	Cys	Asn	Ile	Leu	Thr	
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Phe	Gly	Gln	Leu	Glu	Gln	Asn	Val	Tyr	Gly	Ile	Thr	Ile	Ile	Ser	Gly	
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Thr	Asn	Phe	Thr	Leu	Lys	Ser	Glu	Trp	Ala	Thr	His	Lys	Phe	Ala	Asp	
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Cys	Lys	Ala	Lys	Arg	Asp	Thr	Pro	Thr	Ser	Cys	Thr	Val	Asp	Tyr	Ser	
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Thr	Val	Tyr	Phe	Val	Asn	Ile	Glu	Val	Trp	Val	Glu	Ala	Glu	Asn	Ala	
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Val	Lys	Pro	Asn	Pro	Pro	His	Asn	Leu	Ser	Val	Ile	Asn	Ser	Glu	Glu	
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Leu	Ser	Ser	Ile	Leu	Lys	Leu	Thr	Trp	Thr	Asn	Pro	Ser	Ile	Lys	Ser	
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Val	Ile	Ile	Leu	Lys	Tyr	Asn	Ile	Gln	Tyr	Arg	Thr	Lys	Asp	Ala	Ser	
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Thr	Trp	Ser	Gln	Ile	Pro	Pro	Glu	Asp	Thr	Ala	Ser	Thr	Arg	Ser	Ser	
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Phe	Thr	Val	Gln	Asp	Leu	Lys	Pro	Phe	Thr	Glu	Tyr	Val	Phe	Arg	Ile	
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Arg	Cys	Met	Lys	Glu	Asp	Gly	Lys	Gly	Tyr	Trp	Ser	Asp	Trp	Ser	Glu	
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Glu	Ala	Ser	Gly	Ile	Thr	Tyr	Glu	Asp	Arg	Pro	Ser	Lys	Ala	Pro	Ser	
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Phe	Trp	Tyr	Lys	Ile	Asp	Pro	Ser	His	Thr	Gln	Gly	Tyr	Arg	Thr	Val	
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Gln	Leu	Val	Trp	Lys	Thr	Leu	Pro	Pro	Phe	Glu	Ala	Asn	Gly	Lys	Ile	
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Leu	Asp	Tyr	Glu	Val	Thr	Leu	Thr	Arg	Trp	Lys	Ser	His	Leu	Gln	Asn	
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Tyr	Thr	Val	Asn	Ala	Thr	Lys	Leu	Thr	Val	Asn	Leu	Thr	Asn	Asp	Arg
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Tyr	Leu	Ala	Thr	Leu	Thr	Val	Arg	Asn	Leu	Val	Gly	Lys	Ser	Asp	Ala
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Ala	Val	Leu	Thr	Ile	Pro	Ala	Cys	Asp	Phe	Gln	Ala	Thr	His	Pro	Val
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Met	Asp	Leu	Lys	Ala	Phe	Pro	Lys	Asp	Asn	Met	Leu	Trp	Val	Glu	Trp
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Leu	Ser	Asp	Lys	Ala	Pro	Cys	Ile	Thr	Asp	Trp	Gln	Gln	Glu	Asp	Gly
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Thr	Val	His	Arg	Thr	Tyr	Leu	Arg	Gly	Asn	Leu	Ala	Glu	Ser	Lys	Cys
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Tyr	Leu	Ile	Thr	Val	Thr	Pro	Val	Tyr	Ala	Asp	Gly	Pro	Gly	Ser	Pro
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Glu	Ser	Ile	Lys	Ala	Tyr	Leu	Lys	Gln	Ala	Pro	Pro	Ser	Lys	Gly	Pro
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Thr	Val	Arg	Thr	Lys	Lys	Val	Gly	Lys	Asn	Glu	Ala	Val	Leu	Glu	Trp
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Asp	Gln	Leu	Pro	Val	Asp	Val	Gln	Asn	Gly	Phe	Ile	Arg	Asn	Tyr	Thr
	850					855					860				
Ile	Phe	Tyr	Arg	Thr	Ile	Ile	Gly	Asn	Glu	Thr	Ala	Val	Asn	Val	Asp
865					870					875					880
Ser	Ser	His	Thr	Glu	Tyr	Thr	Leu	Ser	Ser	Leu	Thr	Ser	Asp	Thr	Leu
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Tyr	Met	Val	Arg	Met	Ala	Ala	Tyr	Thr	Asp	Glu	Gly	Gly	Lys	Asp	Gly
			900					905						910	
Pro	Glu	Phe	Thr	Phe	Thr	Thr	Pro	Lys	Phe	Ala	Gln	Gly	Glu	Ile	Glu
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Ser	Gly	Gly	Asp	Lys	Thr	His	Thr	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu
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Leu	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp
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Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp
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Val	Ser	His	Glu	Asp	Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly
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Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn
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Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu
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Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Asp	Glu	Leu	Thr	Lys	Asn
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Gln	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile
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Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr
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Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys
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Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys
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Ser	Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu
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Gln	Ser	Asp	Ala	Ser	Glu	Arg	Cys	Asp	Asp	Trp	Gly	Leu	Asp	Thr	Met	
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Arg	Gln	Ile	Gln	Val	Phe	Glu	Asp	Glu	Pro	Ala	Arg	Ile	Lys	Cys	Pro	
			35					40					45			
ctc	ttt	gaa	cac	ttc	ttg	aaa	ttc	aac	tac	agc	aca	gcc	cat	tca	gct	192
Leu	Phe	Glu	His	Phe	Leu	Lys	Phe	Asn	Tyr	Ser	Thr	Ala	His	Ser	Ala	
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ggc	ctt	act	ctg	atc	tgg	tat	tgg	act	agg	cag	gac	cgg	gac	ctt	gag	240
Gly	Leu	Thr	Leu	Ile	Trp	Tyr	Trp	Thr	Arg	Gln	Asp	Arg	Asp	Leu	Glu	
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gag	cca	att	aac	ttc	cgc	ctc	ccc	gag	aac	cgc	att	agt	aag	gag	aaa	288
Glu	Pro	Ile	Asn	Phe	Arg	Leu	Pro	Glu	Asn	Arg	Ile	Ser	Lys	Glu	Lys	
			85						90					95		
gat	gtg	ctg	tgg	ttc	cgg	ccc	act	ctc	ctc	aat	gac	act	ggc	aac	tat	336
Asp	Val	Leu	Trp	Phe	Arg	Pro	Thr	Leu	Leu	Asn	Asp	Thr	Gly	Asn	Tyr	
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acc	tgc	atg	tta	agg	aac	act	aca	tat	tgc	agc	aaa	gtt	gca	ttt	ccc	384
Thr	Cys	Met	Leu	Arg	Asn	Thr	Thr	Tyr	Cys	Ser	Lys	Val	Ala	Phe	Pro	
		115					120					125				
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Leu	Glu	Val	Val	Gln	Lys	Asp	Ser	Cys	Phe	Asn	Ser	Pro	Met	Lys	Leu	
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Pro	Val	His	Lys	Leu	Tyr	Ile	Glu	Tyr	Gly	Ile	Gln	Arg	Ile	Thr	Cys	
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Pro	Asn	Val	Asp	Gly	Tyr	Phe	Pro	Ser	Ser	Val	Lys	Pro	Thr	Ile	Thr	
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tgg	tat	atg	ggc	tgt	tat	aaa	ata	cag	aat	ttt	aat	aat	gta	ata	ccc	576
Trp	Tyr	Met	Gly	Cys	Tyr	Lys	Ile	Gln	Asn	Phe	Asn	Asn	Val	Ile	Pro	
			180					185					190			
gaa	ggt	atg	aac	ttg	agt	ttc	ctc	att	gcc	tta	att	tca	aat	aat	gga	624
Glu	Gly	Met	Asn	Leu	Ser	Phe	Leu	Ile	Ala	Leu	Ile	Ser	Asn	Asn	Gly	
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Asn Tyr Thr Cys Val Val Thr Tyr Pro Glu Asn Gly Arg Thr Phe His	
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ctc acc agg act ctg act gta aag gta gta ggc tct cca aaa aat gca	720
Leu Thr Arg Thr Leu Thr Val Lys Val Val Gly Ser Pro Lys Asn Ala	
225 230 235 240	
gtg ccc cct gtg atc cat tca cct aat gat cat gtg gtc tat gag aaa	768
Val Pro Pro Val Ile His Ser Pro Asn Asp His Val Val Tyr Glu Lys	
245 250 255	
gaa cca gga gag gag cta ctc att ccc tgt acg gtc tat ttt agt ttt	816
Glu Pro Gly Glu Glu Leu Leu Ile Pro Cys Thr Val Tyr Phe Ser Phe	
260 265 270	
ctg atg gat tct cgc aat gag gtt tgg tgg acc att gat gga aaa aaa	864
Leu Met Asp Ser Arg Asn Glu Val Trp Trp Thr Ile Asp Gly Lys Lys	
275 280 285	
cct gat gac atc act att gat gtc acc att aac gaa agt ata agt cat	912
Pro Asp Asp Ile Thr Ile Asp Val Thr Ile Asn Glu Ser Ile Ser His	
290 295 300	
agt aga aca gaa gat gaa aca aga act cag att ttg agc atc aag aaa	960
Ser Arg Thr Glu Asp Glu Thr Arg Thr Gln Ile Leu Ser Ile Lys Lys	
305 310 315 320	
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Val Thr Ser Glu Asp Leu Lys Arg Ser Tyr Val Cys His Ala Arg Ser	
325 330 335	
gcc aaa ggc gaa gtt gcc aaa gca gcc aag gtg aag cag aaa gtg cca	1056
Ala Lys Gly Glu Val Ala Lys Ala Ala Lys Val Lys Gln Lys Val Pro	
340 345 350	
gct cca aga tac aca gtg tcc ggt ggc gcg cct atg ctg agc gag gct	1104
Ala Pro Arg Tyr Thr Val Ser Gly Gly Ala Pro Met Leu Ser Glu Ala	
355 360 365	
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Asp Lys Cys Lys Glu Arg Glu Glu Lys Ile Ile Leu Val Ser Ser Ala	
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Asn Glu Ile Asp Val Arg Pro Cys Pro Leu Asn Pro Asn Glu His Lys	
385 390 395 400	
ggc act ata act tgg tat aag gat gac agc aag aca cct gta tct aca	1248
Gly Thr Ile Thr Trp Tyr Lys Asp Asp Ser Lys Thr Pro Val Ser Thr	
405 410 415	
gaa caa gcc tcc agg att cat caa cac aaa gag aaa ctt tgg ttt gtt	1296
Glu Gln Ala Ser Arg Ile His Gln His Lys Glu Lys Leu Trp Phe Val	
420 425 430	
cct gct aag gtg gag gat tca gga cat tac tat tgc gtg gta aga aat	1344
Pro Ala Lys Val Glu Asp Ser Gly His Tyr Tyr Cys Val Val Arg Asn	
435 440 445	

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Ser Ser Tyr Cys Leu Arg Ile Lys Ile Ser Ala Lys Phe Val Glu Asn	
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Glu Pro Asn Leu Cys Tyr Asn Ala Gln Ala Ile Phe Lys Gln Lys Leu	
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Pro Val Ala Gly Asp Gly Gly Leu Val Cys Pro Tyr Met Glu Phe Phe	
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Lys Asn Glu Asn Asn Glu Leu Pro Lys Leu Gln Trp Tyr Lys Asp Cys	
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Lys Pro Leu Leu Leu Asp Asn Ile His Phe Ser Gly Val Lys Asp Arg	
515 520 525	
ctc atc gtg atg aat gtg gct gaa aag cat aga ggg aac tat act tgt	1632
Leu Ile Val Met Asn Val Ala Glu Lys His Arg Gly Asn Tyr Thr Cys	
530 535 540	
cat gca tcc tac aca tac ttg ggc aag caa tat cct att acc cgg gta	1680
His Ala Ser Tyr Thr Tyr Leu Gly Lys Gln Tyr Pro Ile Thr Arg Val	
545 550 555 560	
ata gaa ttt att act cta gag gaa aac aaa ccc aca agg cct gtg att	1728
Ile Glu Phe Ile Thr Leu Glu Glu Asn Lys Pro Thr Arg Pro Val Ile	
565 570 575	
gtg agc cca gct aat gag aca atg gaa gta gac ttg gga tcc cag ata	1776
Val Ser Pro Ala Asn Glu Thr Met Glu Val Asp Leu Gly Ser Gln Ile	
580 585 590	
caa ttg atc tgt aat gtc acc ggc cag ttg agt gac att gct tac tgg	1824
Gln Leu Ile Cys Asn Val Thr Gly Gln Leu Ser Asp Ile Ala Tyr Trp	
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aag tgg aat ggg tca gta att gat gaa gat gac cca gtg cta ggg gaa	1872
Lys Trp Asn Gly Ser Val Ile Asp Glu Asp Asp Pro Val Leu Gly Glu	
610 615 620	
gac tat tac agt gtg gaa aat cct gca aac aaa aga agg agt acc ctc	1920
Asp Tyr Tyr Ser Val Glu Asn Pro Ala Asn Lys Arg Arg Ser Thr Leu	
625 630 635 640	
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Ile Thr Val Leu Asn Ile Ser Glu Ile Glu Ser Arg Phe Tyr Lys His	
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Pro Phe Thr Cys Phe Ala Lys Asn Thr His Gly Ile Asp Ala Ala Tyr	
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atc cag tta ata tat cca gtc act aat tcc gga gac aaa act cac aca	2064
Ile Gln Leu Ile Tyr Pro Val Thr Asn Ser Gly Asp Lys Thr His Thr	
675 680 685	
tgc cca ccg tgc cca gca cct gaa ctc ctg ggg gga ccg tca gtc ttc	2112

Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	Leu	Leu	Gly	Gly	Pro	Ser	Val	Phe	
690						695				700						
ctc	ttc	ccc	cca	aaa	ccc	aag	gac	acc	ctc	atg	atc	tcc	cgg	acc	cct	2160
Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	
705					710					715					720	
gag	gtc	aca	tgc	gtg	gtg	gtg	gac	gtg	agc	cac	gaa	gac	cct	gag	gtc	2208
Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val	Ser	His	Glu	Asp	Pro	Glu	Val	
				725					730					735		
aag	ttc	aac	tgg	tac	gtg	gac	ggc	gtg	gag	gtg	cat	aat	gcc	aag	aca	2256
Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val	Glu	Val	His	Asn	Ala	Lys	Thr	
			740					745					750			
aag	ccg	cgg	gag	gag	cag	tac	aac	agc	acg	tac	cgt	gtg	gtc	agc	gtc	2304
Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser	Val	
		755					760					765				
ctc	acc	gtc	ctg	cac	cag	gac	tgg	ctg	aat	ggc	aag	gag	tac	aag	tgc	2352
Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	
	770					775					780					
aag	gtc	tcc	aac	aaa	gcc	ctc	cca	gcc	ccc	atc	gag	aaa	acc	atc	tcc	2400
Lys	Val	Ser	Asn	Lys	Ala	Leu	Pro	Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	
785					790					795					800	
aaa	gcc	aaa	ggg	cag	ccc	cga	gaa	cca	cag	gtg	tac	acc	ctg	ccc	cca	2448
Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	
				805					810					815		
tcc	cgg	gag	gag	atg	acc	aag	aac	cag	gtc	agc	ctg	acc	tgc	ctg	gtc	2496
Ser	Arg	Glu	Glu	Met	Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr	Cys	Leu	Val	
			820					825					830			
aaa	ggc	ttc	tat	ccc	agc	gac	atc	gcc	gtg	gag	tgg	gag	agc	aat	ggg	2544
Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly	
		835					840					845				
cag	ccg	gag	aac	aac	tac	aag	acc	acg	cct	ccc	gtg	ctg	gac	tcc	gac	2592
Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp	
			850			855					860					
ggc	tcc	ttc	ttc	ctc	tat	agc	aag	ctc	acc	gtg	gac	aag	agc	agg	tgg	2640
Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys	Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp	
865					870					875					880	
cag	cag	ggg	aac	gtc	ttc	tca	tgc	tcc	gtg	atg	cat	gag	gct	ctg	cac	2688
Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser	Val	Met	His	Glu	Ala	Leu	His	
				885					890					895		
aac	cac	tac	acg	cag	aag	agc	ctc	tcc	ctg	tct	ccg	ggt	aaa			2730
Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser	Leu	Ser	Pro	Gly	Lys			
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tga																2733

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<400> 28

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Gln	Ser	Asp	Ala	Ser	Glu	Arg	Cys	Asp	Asp	Trp	Gly	Leu	Asp	Thr	Met
			20					25					30		
Arg	Gln	Ile	Gln	Val	Phe	Glu	Asp	Glu	Pro	Ala	Arg	Ile	Lys	Cys	Pro
		35					40					45			
Leu	Phe	Glu	His	Phe	Leu	Lys	Phe	Asn	Tyr	Ser	Thr	Ala	His	Ser	Ala
	50					55					60				
Gly	Leu	Thr	Leu	Ile	Trp	Tyr	Trp	Thr	Arg	Gln	Asp	Arg	Asp	Leu	Glu
65					70				75						80
Glu	Pro	Ile	Asn	Phe	Arg	Leu	Pro	Glu	Asn	Arg	Ile	Ser	Lys	Glu	Lys
				85					90					95	
Asp	Val	Leu	Trp	Phe	Arg	Pro	Thr	Leu	Leu	Asn	Asp	Thr	Gly	Asn	Tyr
			100					105					110		
Thr	Cys	Met	Leu	Arg	Asn	Thr	Thr	Tyr	Cys	Ser	Lys	Val	Ala	Phe	Pro
		115					120					125			
Leu	Glu	Val	Val	Gln	Lys	Asp	Ser	Cys	Phe	Asn	Ser	Pro	Met	Lys	Leu
	130					135					140				
Pro	Val	His	Lys	Leu	Tyr	Ile	Glu	Tyr	Gly	Ile	Gln	Arg	Ile	Thr	Cys
145					150					155					160
Pro	Asn	Val	Asp	Gly	Tyr	Phe	Pro	Ser	Ser	Val	Lys	Pro	Thr	Ile	Thr
				165					170					175	
Trp	Tyr	Met	Gly	Cys	Tyr	Lys	Ile	Gln	Asn	Phe	Asn	Asn	Val	Ile	Pro
			180					185					190		
Glu	Gly	Met	Asn	Leu	Ser	Phe	Leu	Ile	Ala	Leu	Ile	Ser	Asn	Asn	Gly
		195					200					205			
Asn	Tyr	Thr	Cys	Val	Val	Thr	Tyr	Pro	Glu	Asn	Gly	Arg	Thr	Phe	His
	210					215					220				
Leu	Thr	Arg	Thr	Leu	Thr	Val	Lys	Val	Val	Gly	Ser	Pro	Lys	Asn	Ala
225					230					235					240
Val	Pro	Pro	Val	Ile	His	Ser	Pro	Asn	Asp	His	Val	Val	Tyr	Glu	Lys
				245					250					255	
Glu	Pro	Gly	Glu	Glu	Leu	Leu	Ile	Pro	Cys	Thr	Val	Tyr	Phe	Ser	Phe
			260					265					270		
Leu	Met	Asp	Ser	Arg	Asn	Glu	Val	Trp	Trp	Thr	Ile	Asp	Gly	Lys	Lys
		275					280					285			
Pro	Asp	Asp	Ile	Thr	Ile	Asp	Val	Thr	Ile	Asn	Glu	Ser	Ile	Ser	His
	290					295					300				
Ser	Arg	Thr	Glu	Asp	Glu	Thr	Arg	Thr	Gln	Ile	Leu	Ser	Ile	Lys	Lys
305					310					315					320
Val	Thr	Ser	Glu	Asp	Leu	Lys	Arg	Ser	Tyr	Val	Cys	His	Ala	Arg	Ser
			325						330					335	
Ala	Lys	Gly	Glu	Val	Ala	Lys	Ala	Ala	Lys	Val	Lys	Gln	Lys	Val	Pro
			340					345					350		
Ala	Pro	Arg	Tyr	Thr	Val	Ser	Gly	Gly	Ala	Pro	Met	Leu	Ser	Glu	Ala
		355					360					365			
Asp	Lys	Cys	Lys	Glu	Arg	Glu	Glu	Lys	Ile	Ile	Leu	Val	Ser	Ser	Ala
	370					375					380				
Asn	Glu	Ile	Asp	Val	Arg	Pro	Cys	Pro	Leu	Asn	Pro	Asn	Glu	His	Lys
385					390					395					400
Gly	Thr	Ile	Thr	Trp	Tyr	Lys	Asp	Asp	Ser	Lys	Thr	Pro	Val	Ser	Thr
			405					410						415	
Glu	Gln	Ala	Ser	Arg	Ile	His	Gln	His	Lys	Glu	Lys	Leu	Trp	Phe	Val
			420					425					430		
Pro	Ala	Lys	Val	Glu	Asp	Ser	Gly	His	Tyr	Tyr	Cys	Val	Val	Arg	Asn
		435					440					445			
Ser	Ser	Tyr	Cys	Leu	Arg	Ile	Lys	Ile	Ser	Ala	Lys	Phe	Val	Glu	Asn
	450					455					460				
Glu	Pro	Asn	Leu	Cys	Tyr	Asn	Ala	Gln	Ala	Ile	Phe	Lys	Gln	Lys	Leu

465					470					475				480
Pro	Val	Ala	Gly	Asp	Gly	Gly	Leu	Val	Cys	Pro	Tyr	Met	Glu	Phe
				485					490					495
Lys	Asn	Glu	Asn	Asn	Glu	Leu	Pro	Lys	Leu	Gln	Trp	Tyr	Lys	Asp
			500					505					510	
Lys	Pro	Leu	Leu	Leu	Asp	Asn	Ile	His	Phe	Ser	Gly	Val	Lys	Asp
		515					520					525		Arg
Leu	Ile	Val	Met	Asn	Val	Ala	Glu	Lys	His	Arg	Gly	Asn	Tyr	Thr
	530					535					540			Cys
His	Ala	Ser	Tyr	Thr	Tyr	Leu	Gly	Lys	Gln	Tyr	Pro	Ile	Thr	Arg
545					550					555				560
Ile	Glu	Phe	Ile	Thr	Leu	Glu	Glu	Asn	Lys	Pro	Thr	Arg	Pro	Val
				565					570					575
Val	Ser	Pro	Ala	Asn	Glu	Thr	Met	Glu	Val	Asp	Leu	Gly	Ser	Gln
			580					585					590	Ile
Gln	Leu	Ile	Cys	Asn	Val	Thr	Gly	Gln	Leu	Ser	Asp	Ile	Ala	Tyr
	595						600					605		Trp
Lys	Trp	Asn	Gly	Ser	Val	Ile	Asp	Glu	Asp	Asp	Pro	Val	Leu	Gly
	610					615					620			Glu
Asp	Tyr	Tyr	Ser	Val	Glu	Asn	Pro	Ala	Asn	Lys	Arg	Arg	Ser	Thr
625					630					635				640
Ile	Thr	Val	Leu	Asn	Ile	Ser	Glu	Ile	Glu	Ser	Arg	Phe	Tyr	Lys
				645					650					655
Pro	Phe	Thr	Cys	Phe	Ala	Lys	Asn	Thr	His	Gly	Ile	Asp	Ala	Ala
			660					665					670	Tyr
Ile	Gln	Leu	Ile	Tyr	Pro	Val	Thr	Asn	Ser	Gly	Asp	Lys	Thr	His
	675						680					685		Thr
Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	Leu	Leu	Gly	Gly	Pro	Ser	Val
	690					695					700			Phe
Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	Thr	Leu	Met	Ile	Ser	Arg	Thr
705					710					715				720
Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val	Ser	His	Glu	Asp	Pro	Glu
				725						730				735
Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val	Glu	Val	His	Asn	Ala	Lys
		740					745						750	Thr
Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser
	755						760					765		Val
Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys
	770					775					780			Cys
Lys	Val	Ser	Asn	Lys	Ala	Leu	Pro	Ala	Pro	Ile	Glu	Lys	Thr	Ile
785					790					795				800
Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr	Leu	Pro
				805					810					815
Ser	Arg	Glu	Glu	Met	Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr	Cys	Leu
		820						825					830	Val
Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu	Ser	Asn
	835						840					845		Gly
Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Val	Leu	Asp	Ser
	850					855					860			Asp
Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys	Leu	Thr	Val	Asp	Lys	Ser	Arg
865					870					875				880
Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser	Val	Met	His	Glu	Ala	Leu
				885					890					895
Asn	His	Tyr	Thr	Gln	Lys	Ser	Leu	Ser	Leu	Ser	Pro	Gly	Lys	
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Met	Val	Trp	Leu	Cys	Ser	Gly	Leu	Leu	Phe	Pro	Val	Ser	Cys	Leu	Val	
1				5					10					15		
ctg ctg cag gtg gca agc tct ggg aac atg aag gtc ttg cag gag ccc																96
Leu	Leu	Gln	Val	Ala	Ser	Ser	Gly	Asn	Met	Lys	Val	Leu	Gln	Glu	Pro	
			20					25					30			
acc tgc gtc tcc gac tac atg agc atc tct act tgc gag tgg aag atg																144
Thr	Cys	Val	Ser	Asp	Tyr	Met	Ser	Ile	Ser	Thr	Cys	Glu	Trp	Lys	Met	
			35				40					45				
aat ggt ccc acc aat tgc agc acc gag ctc cgc ctg ttg tac cag ctg																192
Asn	Gly	Pro	Thr	Asn	Cys	Ser	Thr	Glu	Leu	Arg	Leu	Leu	Tyr	Gln	Leu	
	50					55					60					
gtt ttt ctg ctc tcc gaa gcc cac acg tgt atc cct gag aac aac gga																240
Val	Phe	Leu	Leu	Ser	Glu	Ala	His	Thr	Cys	Ile	Pro	Glu	Asn	Asn	Gly	
65				70				75							80	
ggc gcg ggg tgc gtg tgc cac ctg ctc atg gat gac gtg gtc agt gcg																288
Gly	Ala	Gly	Cys	Val	Cys	His	Leu	Leu	Met	Asp	Asp	Val	Val	Ser	Ala	
				85				90						95		
gat aac tat aca ctg gac ctg tgg gct ggg cag cag ctg ctg tgg aag																336
Asp	Asn	Tyr	Thr	Leu	Asp	Leu	Trp	Ala	Gly	Gln	Gln	Leu	Leu	Trp	Lys	
			100					105						110		
ggc tcc ttc aag ccc agc gag cat gtg aaa ccc agg gcc cca gga aac																384
Gly	Ser	Phe	Lys	Pro	Ser	Glu	His	Val	Lys	Pro	Arg	Ala	Pro	Gly	Asn	
		115					120					125				
ctg aca gtt cac acc aat gtc tcc gac act ctg ctg ctg acc tgg agc																432
Leu	Thr	Val	His	Thr	Asn	Val	Ser	Asp	Thr	Leu	Leu	Leu	Thr	Trp	Ser	
		130				135						140				
aac ccg tat ccc cct gac aat tac ctg tat aat cat ctc acc tat gca																480
Asn	Pro	Tyr	Pro	Pro	Asp	Asn	Tyr	Leu	Tyr	Asn	His	Leu	Thr	Tyr	Ala	
145					150					155					160	
gtc aac att tgg agt gaa aac gac ccg gca gat ttc aga atc tat aac																528
Val	Asn	Ile	Trp	Ser	Glu	Asn	Asp	Pro	Ala	Asp	Phe	Arg	Ile	Tyr	Asn	
				165				170						175		
gtg acc tac cta gaa ccc tcc ctc cgc atc gca gcc agc acc ctg aag																576
Val	Thr	Tyr	Leu	Glu	Pro	Ser	Leu	Arg	Ile	Ala	Ala	Ser	Thr	Leu	Lys	
			180					185					190			
tct ggg att tcc tac agg gca cgg gtg agg gcc tgg gct cag agc tat																624
Ser	Gly	Ile	Ser	Tyr	Arg	Ala	Arg	Val	Arg	Ala	Trp	Ala	Gln	Ser	Tyr	
		195				200						205				
aac acc acc tgg agt gag tgg agc ccc agc acc aag tgg cac aac tcc																672
Asn	Thr	Thr	Trp	Ser	Glu	Trp	Ser	Pro	Ser	Thr	Lys	Trp	His	Asn	Ser	
		210				215					220					

tac	agg	gag	ccc	ttc	gag	cag	tcc	ggt	ggg	ggc	ggg	ggc	gcc	gcg	cct	720
Tyr	Arg	Glu	Pro	Phe	Glu	Gln	Ser	Gly	Gly	Gly	Gly	Gly	Ala	Ala	Pro	
225					230				235						240	
acg	gaa	act	cag	cca	cct	gtg	aca	aat	ttg	agt	gtc	tct	gtt	gaa	aac	768
Thr	Glu	Thr	Gln	Pro	Pro	Val	Thr	Asn	Leu	Ser	Val	Ser	Val	Glu	Asn	
				245					250					255		
ctc	tgc	aca	gta	ata	tgg	aca	tgg	aat	cca	ccc	gag	gga	gcc	agc	tca	816
Leu	Cys	Thr	Val	Ile	Trp	Thr	Trp	Asn	Pro	Pro	Glu	Gly	Ala	Ser	Ser	
			260					265					270			
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Asn	Cys	Ser	Leu	Trp	Tyr	Phe	Ser	His	Phe	Gly	Asp	Lys	Gln	Asp	Lys	
		275					280					285				
aaa	ata	gct	ccg	gaa	act	cgt	cgt	tca	ata	gaa	gta	ccc	ctg	aat	gag	912
Lys	Ile	Ala	Pro	Glu	Thr	Arg	Arg	Ser	Ile	Glu	Val	Pro	Leu	Asn	Glu	
	290					295				300						
agg	att	tgt	ctg	caa	gtg	ggg	tcc	cag	tgt	agc	acc	aat	gag	agt	gag	960
Arg	Ile	Cys	Leu	Gln	Val	Gly	Ser	Gln	Cys	Ser	Thr	Asn	Glu	Ser	Glu	
305					310					315					320	
aag	cct	agc	att	ttg	gtt	gaa	aaa	tgc	atc	tca	ccc	cca	gaa	ggt	gat	1008
Lys	Pro	Ser	Ile	Leu	Val	Glu	Lys	Cys	Ile	Ser	Pro	Pro	Glu	Gly	Asp	
				325				330						335		
cct	gag	tct	gct	gtg	act	gag	ctt	caa	tgc	att	tgg	cac	aac	ctg	agc	1056
Pro	Glu	Ser	Ala	Val	Thr	Glu	Leu	Gln	Cys	Ile	Trp	His	Asn	Leu	Ser	
			340					345					350			
tac	atg	aag	tgt	tct	tgg	ctc	cct	gga	agg	aat	acc	agt	ccc	gac	act	1104
Tyr	Met	Lys	Cys	Ser	Trp	Leu	Pro	Gly	Arg	Asn	Thr	Ser	Pro	Asp	Thr	
		355					360					365				
aac	tat	act	ctc	tac	tat	tgg	cac	aga	agc	ctg	gaa	aaa	att	cat	caa	1152
Asn	Tyr	Thr	Leu	Tyr	Tyr	Trp	His	Arg	Ser	Leu	Glu	Lys	Ile	His	Gln	
	370					375					380					
tgt	gaa	aac	atc	ttt	aga	gaa	ggc	caa	tac	ttt	ggt	tgt	tcc	ttt	gat	1200
Cys	Glu	Asn	Ile	Phe	Arg	Glu	Gly	Gln	Tyr	Phe	Gly	Cys	Ser	Phe	Asp	
385				390						395					400	
ctg	acc	aaa	gtg	aag	gat	tcc	agt	ttt	gaa	caa	cac	agt	gtc	caa	ata	1248
Leu	Thr	Lys	Val	Lys	Asp	Ser	Ser	Phe	Glu	Gln	His	Ser	Val	Gln	Ile	
			405					410						415		
atg	gtc	aag	gat	aat	gca	gga	aaa	att	aaa	cca	tcc	ttc	aat	ata	gtg	1296
Met	Val	Lys	Asp	Asn	Ala	Gly	Lys	Ile	Lys	Pro	Ser	Phe	Asn	Ile	Val	
			420					425					430			
cct	tta	act	tcc	cgt	gtg	aaa	cct	gat	cct	cca	cat	att	aaa	aac	ctc	1344
Pro	Leu	Thr	Ser	Arg	Val	Lys	Pro	Asp	Pro	Pro	His	Ile	Lys	Asn	Leu	
			435				440					445				
tcc	ttc	cac	aat	gat	gac	cta	tat	gtg	caa	tgg	gag	aat	cca	cag	aat	1392
Ser	Phe	His	Asn	Asp	Asp	Leu	Tyr	Val	Gln	Trp	Glu	Asn	Pro	Gln	Asn	
	450					455					460					
ttt	att	agc	aga	tgc	cta	ttt	tat	gaa	gta	gaa	gtc	aat	aac	agc	caa	1440

Phe 465	Ile	Ser	Arg	Cys	Leu 470	Phe	Tyr	Glu	Val	Glu 475	Val	Asn	Asn	Ser	Gln 480	
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Thr	Glu	Thr	His	Asn 485	Val	Phe	Tyr	Val	Gln 490	Glu	Ala	Lys	Cys	Glu 495	Asn	
cca	gaa	ttt	gag	aga	aat	gtg	gag	aat	aca	tct	tgt	ttc	atg	gtc	cct	1536
Pro	Glu	Phe	Glu	Arg	Asn	Val	Glu	Asn 505	Thr	Ser	Cys	Phe	Met 510	Val	Pro	
ggt	gtt	ctt	cct	gat	act	ttg	aac	aca	gtc	aga	ata	aga	gtc	aaa	aca	1584
Gly	Val	Leu 515	Pro	Asp	Thr	Leu	Asn 520	Thr	Val	Arg	Ile	Arg 525	Val	Lys	Thr	
aat	aag	tta	tgc	tat	gag	gat	gac	aaa	ctc	tgg	agt	aat	tgg	agc	caa	1632
Asn	Lys 530	Leu	Cys	Tyr	Glu	Asp 535	Asp	Lys	Leu	Trp	Ser 540	Asn	Trp	Ser	Gln	
gaa	atg	agt	ata	ggt	aag	aag	cgc	aat	tcc	aca	acc	gga	gac	aaa	act	1680
Glu	Met	Ser	Ile	Gly	Lys 550	Lys	Arg	Asn	Ser	Thr 555	Thr	Gly	Asp	Lys	Thr 560	
cac	aca	tgc	cca	ccg	tgc	cca	gca	cct	gaa	ctc	ctg	ggg	gga	ccg	tca	1728
His	Thr	Cys	Pro	Pro 565	Cys	Pro	Ala	Pro	Glu 570	Leu	Leu	Gly	Gly	Pro 575	Ser	
gtc	ttc	ctc	ttc	ccc	cca	aaa	ccc	aag	gac	acc	ctc	atg	atc	tcc	cgg	1776
Val	Phe	Leu	Phe 580	Pro	Pro	Lys	Pro	Lys 585	Asp	Thr	Leu	Met	Ile 590	Ser	Arg	
acc	cct	gag	gtc	aca	tgc	gtg	gtg	gtg	gac	gtg	agc	cac	gaa	gac	cct	1824
Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val 600	Asp	Val	Ser	His 605	Glu	Asp	Pro	
gag	gtc	aag	ttc	aac	tgg	tac	gtg	gac	ggc	gtg	gag	gtg	cat	aat	gcc	1872
Glu	Val	Lys	Phe	Asn	Trp	Tyr	Val	Asp	Gly	Val	Glu	Val	His	Asn	Ala	
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Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn	Ser 635	Thr	Tyr	Arg	Val	Val 640	
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Ser	Val	Leu	Thr	Val 645	Leu	His	Gln	Asp	Trp 650	Leu	Asn	Gly	Lys	Glu 655	Tyr	
aag	tgc	aag	gtc	tcc	aac	aaa	gcc	ctc	cca	gcc	ccc	atc	gag	aaa	acc	2016
Lys	Cys	Lys	Val	Ser	Asn	Lys	Ala	Leu 665	Pro	Ala	Pro	Ile	Glu 670	Lys	Thr	
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atc	tcc	aaa	gcc	aaa	ggg	cag	ccc	cga	gaa	cca	cag	gtg	tac	acc	ctg	2064
Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr	Leu	
675							680					685				
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Pro	Pro	Ser	Arg	Glu	Glu	Met	Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr	Cys	
690						695					700					
ctg	gtc	aaa	ggc	ttc	tat	ccc	agc	gac	atc	gcc	gtg	gag	tgg	gag	agc	2160
Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu	Ser	

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aat ggg cag ccg gag aac aac tac aag acc acg cct ccc gtg ctg gac							2208
Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp							
		725		730		735	
tcc gac ggc tcc ttc ttc ctc tat agc aag ctc acc gtg gac aag agc							2256
Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser							
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agg tgg cag cag ggg aac gtc ttc tca tgc tcc gtg atg cat gag gct							2304
Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala							
		755		760		765	
ctg cac aac cac tac acg cag aag agc ctc tcc ctg tct ccg ggt aaa							2352
Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys							
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Thr Cys Val Ser Asp Tyr Met Ser Ile Ser Thr Cys Glu Trp Lys Met							
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Asn Gly Pro Thr Asn Cys Ser Thr Glu Leu Arg Leu Leu Tyr Gln Leu							
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Val Phe Leu Leu Ser Glu Ala His Thr Cys Ile Pro Glu Asn Asn Gly							
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Gly Ala Gly Cys Val Cys His Leu Leu Met Asp Asp Val Val Ser Ala							
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Asp Asn Tyr Thr Leu Asp Leu Trp Ala Gly Gln Gln Leu Leu Trp Lys							
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Gly Ser Phe Lys Pro Ser Glu His Val Lys Pro Arg Ala Pro Gly Asn							
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Asn Pro Tyr Pro Pro Asp Asn Tyr Leu Tyr Asn His Leu Thr Tyr Ala							
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Val Asn Ile Trp Ser Glu Asn Asp Pro Ala Asp Phe Arg Ile Tyr Asn							
165 170 175							
Val Thr Tyr Leu Glu Pro Ser Leu Arg Ile Ala Ala Ser Thr Leu Lys							
180 185 190							
Ser Gly Ile Ser Tyr Arg Ala Arg Val Arg Ala Trp Ala Gln Ser Tyr							
195 200 205							
Asn Thr Thr Trp Ser Glu Trp Ser Pro Ser Thr Lys Trp His Asn Ser							
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Tyr Arg Glu Pro Phe Glu Gln Ser Gly Gly Gly Gly Ala Ala Pro							
225 230 235 240							
Thr Glu Thr Gln Pro Pro Val Thr Asn Leu Ser Val Ser Val Glu Asn							
245 250 255							
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260 265 270							
Asn Cys Ser Leu Trp Tyr Phe Ser His Phe Gly Asp Lys Gln Asp Lys							

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Lys	Ile	Ala	Pro	Glu	Thr	Arg	Arg	Ser	Ile	Glu	Val	Pro	Leu	Asn	Glu
	290						295				300				
Arg	Ile	Cys	Leu	Gln	Val	Gly	Ser	Gln	Cys	Ser	Thr	Asn	Glu	Ser	Glu
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Lys	Pro	Ser	Ile	Leu	Val	Glu	Lys	Cys	Ile	Ser	Pro	Pro	Glu	Gly	Asp
				325					330					335	
Pro	Glu	Ser	Ala	Val	Thr	Glu	Leu	Gln	Cys	Ile	Trp	His	Asn	Leu	Ser
			340					345					350		
Tyr	Met	Lys	Cys	Ser	Trp	Leu	Pro	Gly	Arg	Asn	Thr	Ser	Pro	Asp	Thr
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Asn	Tyr	Thr	Leu	Tyr	Tyr	Trp	His	Arg	Ser	Leu	Glu	Lys	Ile	His	Gln
	370					375					380				
Cys	Glu	Asn	Ile	Phe	Arg	Glu	Gly	Gln	Tyr	Phe	Gly	Cys	Ser	Phe	Asp
385					390					395					400
Leu	Thr	Lys	Val	Lys	Asp	Ser	Ser	Phe	Glu	Gln	His	Ser	Val	Gln	Ile
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Met	Val	Lys	Asp	Asn	Ala	Gly	Lys	Ile	Lys	Pro	Ser	Phe	Asn	Ile	Val
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Pro	Leu	Thr	Ser	Arg	Val	Lys	Pro	Asp	Pro	Pro	His	Ile	Lys	Asn	Leu
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Ser	Phe	His	Asn	Asp	Asp	Leu	Tyr	Val	Gln	Trp	Glu	Asn	Pro	Gln	Asn
	450					455					460				
Phe	Ile	Ser	Arg	Cys	Leu	Phe	Tyr	Glu	Val	Glu	Val	Asn	Asn	Ser	Gln
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Thr	Glu	Thr	His	Asn	Val	Phe	Tyr	Val	Gln	Glu	Ala	Lys	Cys	Glu	Asn
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Pro	Glu	Phe	Glu	Arg	Asn	Val	Glu	Asn	Thr	Ser	Cys	Phe	Met	Val	Pro
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Glu	Met	Ser	Ile	Gly	Lys	Lys	Arg	Asn	Ser	Thr	Thr	Gly	Asp	Lys	Thr
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His	Thr	Cys	Pro	Pro	Cys	Pro	Ala	Pro	Glu	Leu	Leu	Gly	Gly	Pro	Ser
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Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	Thr	Leu	Met	Ile	Ser	Arg
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Thr	Pro	Glu	Val	Thr	Cys	Val	Val	Val	Asp	Val	Ser	His	Glu	Asp	Pro
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Lys	Thr	Lys	Pro	Arg	Glu	Glu	Gln	Tyr	Asn	Ser	Thr	Tyr	Arg	Val	Val
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Ser	Val	Leu	Thr	Val	Leu	His	Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr
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Lys	Cys	Lys	Val	Ser	Asn	Lys	Ala	Leu	Pro	Ala	Pro	Ile	Glu	Lys	Thr
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Ile	Ser	Lys	Ala	Lys	Gly	Gln	Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr	Leu
	675					680						685			
Pro	Pro	Ser	Arg	Glu	Glu	Met	Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr	Cys
	690					695					700				
Leu	Val	Lys	Gly	Phe	Tyr	Pro	Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu	Ser
705					710					715					720
Asn	Gly	Gln	Pro	Glu	Asn	Asn	Tyr	Lys	Thr	Thr	Pro	Pro	Val	Leu	Asp
			725						730					735	
Ser	Asp	Gly	Ser	Phe	Phe	Leu	Tyr	Ser	Lys	Leu	Thr	Val	Asp	Lys	Ser
		740						745					750		
Arg	Trp	Gln	Gln	Gly	Asn	Val	Phe	Ser	Cys	Ser	Val	Met	His	Glu	Ala
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 gcc ggc ggc ggg ggc ggg ggc ggg ggc gcc gcg cct acg gaa act cag 96
 Ala Gly Gly Gly Gly Gly Gly Gly Gly Ala Ala Pro Thr Glu Thr Gln
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 cca cct gtg aca aat ttg agt gtc tct gtt gaa aac ctc tgc aca gta 144
 Pro Pro Val Thr Asn Leu Ser Val Ser Val Glu Asn Leu Cys Thr Val
 35 40 45
 ata tgg aca tgg aat cca ccc gag gga gcc agc tca aat tgt agt cta 192
 Ile Trp Thr Trp Asn Pro Pro Glu Gly Ala Ser Ser Asn Cys Ser Leu
 50 55 60
 tgg tat ttt agt cat ttt ggc gac aaa caa gat aag aaa ata gct ccg 240
 Trp Tyr Phe Ser His Phe Gly Asp Lys Gln Asp Lys Lys Ile Ala Pro
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 gaa act cgt cgt tca ata gaa gta ccc ctg aat gag agg att tgt ctg 288
 Glu Thr Arg Arg Ser Ile Glu Val Pro Leu Asn Glu Arg Ile Cys Leu
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 caa gtg ggg tcc cag tgt agc acc aat gag agt gag aag cct agc att 336
 Gln Val Gly Ser Gln Cys Ser Thr Asn Glu Ser Glu Lys Pro Ser Ile
 100 105 110
 ttg gtt gaa aaa tgc atc tca ccc cca gaa ggt gat cct gag tct gct 384
 Leu Val Glu Lys Cys Ile Ser Pro Pro Glu Gly Asp Pro Glu Ser Ala
 115 120 125
 gtg act gag ctt caa tgc att tgg cac aac ctg agc tac atg aag tgt 432
 Val Thr Glu Leu Gln Cys Ile Trp His Asn Leu Ser Tyr Met Lys Cys
 130 135 140
 tct tgg ctc cct gga agg aat acc agt ccc gac act aac tat act ctc 480
 Ser Trp Leu Pro Gly Arg Asn Thr Ser Pro Asp Thr Asn Tyr Thr Leu
 145 150 155 160
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 Tyr Tyr Trp His Arg Ser Leu Glu Lys Ile His Gln Cys Glu Asn Ile
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 ttt aga gaa ggc caa tac ttt ggt tgt tcc ttt gat ctg acc aaa gtg 576
 Phe Arg Glu Gly Gln Tyr Phe Gly Cys Ser Phe Asp Leu Thr Lys Val
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aca ctg gac ctg tgg gct ggg cag cag ctg ctg tgg aag ggc tcc ttc	1344

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Lys	Pro	Ser	Glu	His	Val	Lys	Pro	Arg	Ala	Pro	Gly	Asn	Leu	Thr	Val	
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cac	acc	aat	gtc	tcc	gac	act	ctg	ctg	ctg	acc	tgg	agc	aac	ccg	tat	1440
His	Thr	Asn	Val	Ser	Asp	Thr	Leu	Leu	Leu	Thr	Trp	Ser	Asn	Pro	Tyr	
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Pro	Pro	Asp	Asn	Tyr	Leu	Tyr	Asn	His	Leu	Thr	Tyr	Ala	Val	Asn	Ile	
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Trp	Ser	Glu	Asn	Asp	Pro	Ala	Asp	Phe	Arg	Ile	Tyr	Asn	Val	Thr	Tyr	
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Leu	Glu	Pro	Ser	Leu	Arg	Ile	Ala	Ala	Ser	Thr	Leu	Lys	Ser	Gly	Ile	
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Ser	Tyr	Arg	Ala	Arg	Val	Arg	Ala	Trp	Ala	Gln	Cys	Tyr	Asn	Thr	Thr	
	530					535					540					
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Trp	Ser	Glu	Trp	Ser	Pro	Ser	Thr	Lys	Trp	His	Asn	Ser	Tyr	Arg	Glu	
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Pro	Phe	Glu	Gln	Ser	Gly	Asp	Lys	Thr	His	Thr	Cys	Pro	Pro	Cys	Pro	
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Ala	Pro	Glu	Leu	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	
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Pro	Lys	Asp	Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	
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Val	Val	Asp	Val	Ser	His	Glu	Asp	Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr	
	610					615					620					
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Val	Asp	Gly	Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	
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cag	tac	aac	agc	acg	tac	cgt	gtg	gtc	agc	gtc	ctc	acc	gtc	ctg	cac	1968
Gln	Tyr	Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	
				645					650					655		
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Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	
			660					665					670			
gcc	ctc	cca	gcc	ccc	atc	gag	aaa	acc	atc	tcc	aaa	gcc	aaa	ggg	cag	2064
Ala	Leu	Pro	Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln	

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ccc cga gaa cca cag gtg tac acc ctg ccc cca tcc cgg gag gag atg Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met 690 695 700			2112
acc aag aac cag gtc agc ctg acc tgc ctg gtc aaa ggc ttc tat ccc Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro 705 710 715 720			2160
agc gac atc gcc gtg gag tgg gag agc aat ggg cag ccg gag aac aac Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn 725 730 735			2208
tac aag acc acg cct ccc gtg ctg gac tcc gac ggc tcc ttc ttc ctc Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu 740 745 750			2256
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aag agc ctc tcc ctg tct ccg ggt aaa tga Lys Ser Leu Ser Leu Ser Pro Gly Lys 785 790			2382

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Ile Trp Thr Trp Asn Pro Pro Glu Gly Ala Ser Ser Asn Cys Ser Leu 50 55 60	
Trp Tyr Phe Ser His Phe Gly Asp Lys Gln Asp Lys Lys Ile Ala Pro 65 70 75 80	
Glu Thr Arg Arg Ser Ile Glu Val Pro Leu Asn Glu Arg Ile Cys Leu 85 90 95	
Gln Val Gly Ser Gln Cys Ser Thr Asn Glu Ser Glu Lys Pro Ser Ile 100 105 110	
Leu Val Glu Lys Cys Ile Ser Pro Pro Glu Gly Asp Pro Glu Ser Ala 115 120 125	
Val Thr Glu Leu Gln Cys Ile Trp His Asn Leu Ser Tyr Met Lys Cys 130 135 140	
Ser Trp Leu Pro Gly Arg Asn Thr Ser Pro Asp Thr Asn Tyr Thr Leu 145 150 155 160	
Tyr Tyr Trp His Arg Ser Leu Glu Lys Ile His Gln Cys Glu Asn Ile 165 170 175	
Phe Arg Glu Gly Gln Tyr Phe Gly Cys Ser Phe Asp Leu Thr Lys Val 180 185 190	

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Asn	Ala	Gly	Lys	Ile	Lys	Pro	Ser	Phe	Asn	Ile	Val	Pro	Leu	Thr	Ser	210	215	220
Arg	Val	Lys	Pro	Asp	Pro	Pro	His	Ile	Lys	Asn	Leu	Ser	Phe	His	Asn	225	230	235
Asp	Asp	Leu	Tyr	Val	Gln	Trp	Glu	Asn	Pro	Gln	Asn	Phe	Ile	Ser	Arg	245	250	255
Cys	Leu	Phe	Tyr	Glu	Val	Glu	Val	Asn	Asn	Ser	Gln	Thr	Glu	Thr	His	260	265	270
Asn	Val	Phe	Tyr	Val	Gln	Glu	Ala	Lys	Cys	Glu	Asn	Pro	Glu	Phe	Glu	275	280	285
Arg	Asn	Val	Glu	Asn	Thr	Ser	Cys	Phe	Met	Val	Pro	Gly	Val	Leu	Pro	290	295	300
Asp	Thr	Leu	Asn	Thr	Val	Arg	Ile	Arg	Val	Lys	Thr	Asn	Lys	Leu	Cys	305	310	315
Tyr	Glu	Asp	Asp	Lys	Leu	Trp	Ser	Asn	Trp	Ser	Gln	Glu	Met	Ser	Ile	325	330	335
Gly	Lys	Lys	Arg	Asn	Ser	Thr	Gly	Ala	Pro	Ser	Gly	Gly	Gly	Gly	Arg	340	345	350
Pro	Ala	Ser	Ser	Gly	Asn	Met	Lys	Val	Leu	Gln	Glu	Pro	Thr	Cys	Val	355	360	365
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Cys	Val	Cys	His	Leu	Leu	Met	Asp	Asp	Val	Val	Ser	Ala	Asp	Asn	Tyr	420	425	430
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Lys	Pro	Ser	Glu	His	Val	Lys	Pro	Arg	Ala	Pro	Gly	Asn	Leu	Thr	Val	450	455	460
His	Thr	Asn	Val	Ser	Asp	Thr	Leu	Leu	Leu	Thr	Trp	Ser	Asn	Pro	Tyr	465	470	475
Pro	Pro	Asp	Asn	Tyr	Leu	Tyr	Asn	His	Leu	Thr	Tyr	Ala	Val	Asn	Ile	485	490	495
Trp	Ser	Glu	Asn	Asp	Pro	Ala	Asp	Phe	Arg	Ile	Tyr	Asn	Val	Thr	Tyr	500	505	510
Leu	Glu	Pro	Ser	Leu	Arg	Ile	Ala	Ala	Ser	Thr	Leu	Lys	Ser	Gly	Ile	515	520	525
Ser	Tyr	Arg	Ala	Arg	Val	Arg	Ala	Trp	Ala	Gln	Cys	Tyr	Asn	Thr	Thr	530	535	540
Trp	Ser	Glu	Trp	Ser	Pro	Ser	Thr	Lys	Trp	His	Asn	Ser	Tyr	Arg	Glu	545	550	555
Pro	Phe	Glu	Gln	Ser	Gly	Asp	Lys	Thr	His	Thr	Cys	Pro	Pro	Cys	Pro	565	570	575
Ala	Pro	Glu	Leu	Leu	Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	580	585	590
Pro	Lys	Asp	Thr	Leu	Met	Ile	Ser	Arg	Thr	Pro	Glu	Val	Thr	Cys	Val	595	600	605
Val	Val	Asp	Val	Ser	His	Glu	Asp	Pro	Glu	Val	Lys	Phe	Asn	Trp	Tyr	610	615	620
Val	Asp	Gly	Val	Glu	Val	His	Asn	Ala	Lys	Thr	Lys	Pro	Arg	Glu	Glu	625	630	635
Gln	Tyr	Asn	Ser	Thr	Tyr	Arg	Val	Val	Ser	Val	Leu	Thr	Val	Leu	His	645	650	655
Gln	Asp	Trp	Leu	Asn	Gly	Lys	Glu	Tyr	Lys	Cys	Lys	Val	Ser	Asn	Lys	660	665	670
Ala	Leu	Pro	Ala	Pro	Ile	Glu	Lys	Thr	Ile	Ser	Lys	Ala	Lys	Gly	Gln			

		675					680					685				
Pro	Arg	Glu	Pro	Gln	Val	Tyr	Thr	Leu	Pro	Pro	Ser	Arg	Glu	Glu	Met	
	690					695					700					
Thr	Lys	Asn	Gln	Val	Ser	Leu	Thr	Cys	Leu	Val	Lys	Gly	Phe	Tyr	Pro	
705					710					715					720	
Ser	Asp	Ile	Ala	Val	Glu	Trp	Glu	Ser	Asn	Gly	Gln	Pro	Glu	Asn	Asn	
				725					730					735		
Tyr	Lys	Thr	Thr	Pro	Pro	Val	Leu	Asp	Ser	Asp	Gly	Ser	Phe	Phe	Leu	
			740					745					750			
Tyr	Ser	Lys	Leu	Thr	Val	Asp	Lys	Ser	Arg	Trp	Gln	Gln	Gly	Asn	Val	
		755					760					765				
Phe	Ser	Cys	Ser	Val	Met	His	Glu	Ala	Leu	His	Asn	His	Tyr	Thr	Gln	
	770					775					780					
Lys	Ser	Leu	Ser	Leu	Ser	Pro	Gly	Lys								
785					790											